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Author Index 245
Subject Index 310

Abstracters

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November–December, 1976

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AUTHOR INDEX FOR 1976

The number in parentheses refers to the issue of *Ceramic Abstracts;* the number following is the page number. The letter B or P preceding the issue number indicates an abstract of (B) a book, bulletin, or separate publication or (P) a patent. The italic letter following the page number indicates position of the abstract on the page.

Aagaard, P. Rare earth element adsorption on clay minerals (5) 144*b*.

Abalakov, B. A. See Prokhortseva, V. A.

Abbakumov, V. G. Exergetic design calculation of tunnel kilns (5) 132*g*. See Gavrish, D. I. ; Gropyanov, V. M.

Abbakumov, V. G., Borisov, V. G., Ashkinadze, G. Sh., and Rodgol'ts, Yu. S. Use of O for hard-to-sinter lump dolomite of high purity (1) 20*c*.

Abbakumov, V. G., and Glazman, M. S. Thermodynamic efficiency of tunnel furnaces (9) 224*g*.

Abbakumov, V. G., Tarakanchikov, G. A., Onishchenko, P. V., and Druzhinin, V. G. Improvements in the heating of MgO refractories in tunnel kilns (3) 65*i*.

Abbattista, F., Burdese, A., and Maja, M. Equilibrium diagram on the system $CaO\text{-}FeO_x$ (9) 231*e*.

Abdalla, M. I. See Holt, D. B.

Abdelghany, F. M. See Embabi, Hassan K.

Abd-El-Khalik, Mohamed See Mikhail, R. Sh.

Abdel-Latif, A. Ismail A., Bradt, R. C., and Rindone, Guy E. Effect of phase separation on slow crack growth in a soda-lime-silica glass (5) 106*b*.

Abdel-Monem, N. M. See Bakr, M. Y.

Abd-el-nour, K. N., Girgis, Lamey G., and Hanna, F. F. Permittivity in the microwave region of some silicate and ferrite minerals at low pressures (9) 236*g*.

Abdulina, M. A. See Nikiforov, A. Ya.

Abdullaev, G. B., Bazhovskaya, N. V., Yuraev, N. D., and Kushev, D. B. Investigation of vibrational spectra of $CdInGaS_4$ crystals by ir spectroscopy (1) 40*i*.

Abe, Hideo See Harada, Shunichi

Abe, Hiroshi See Moriguchi, Sanseki

Abe, Hiroshi, and Bradt, R. C. Effect of additions of coarse grains and fibers on the densification of a sinterable SiC (3) 64*g*.

Abe, Mitsunobu See Gondo, Hisashi

Abe, Satoshi See Takao, Hiroshi

Abe, Yoshihiro, Mori, Katsuo, and Naruse, Akira Role of OH in the crystallization of Mg metaphosphate glass (7) 159*j*.

Abe, Yoshihiro, Naruse, Akira, and Arahori, Tadahisa Crystallization of a Ca metaphosphate glass below its transformation temp. (1) 6*a*.

Abeles, B. See Balberg, I.

Abercrombie, William F., Jr. Controlling the viscosity of dispersed clay slurries, P (9) 216*j*.

Abercrombie, William F., Jr., Trowbridge, Frank R., and McCook, Norman L. Improving brightness of kaolinite clays including Fe pyrites, P (9) 226*i*.

Abita, Joseph L., and Bebee, Jack G. Resist coating of a glass substrate, P (7) 162*h*.

Ables, Richard F. See Madole, Jim M.

Abo-El-Enein, S. A. See Mikhail, R. Sh.

Abol Elkarim, O. I., Gadalla, A. M., and Ezz, S. Y. Al_2O_3 from nepheline by acid solution (7) 178*c*.

Abou-Sayed, A. S., and Clifton, R. J. Pressure shear waves in fused SiO_2 (9) 238*c*.

Abouzeid, Abdel-Zaher M., and Fuerstenau, Douglas W. Contribution of convective dispersion and diffusion mechanisms to the dispersion of particulates in rotating drums (7) 174*g*.

Abraham, M. M. See Chen, Y.

Abrahams, M. S., Blanc, J., and Buiocchi, C. J. Interdependence of strain, precipitation, and dislocation formation in epitaxial Se-doped GaAs (9) 233*d*.

Abramov, V. I., and Tsirkin, I. I. Filter cake clearing, P (1) 24*c*.

Abramov, V. V. See Andreev, P. A.

Abramov, V. V., Makarova, S. F., and Andreev, P. A. Automatic adjustment of pH during complexometric determination of rare earth elements in glasses (5) 104*c*.

Abramova, V. M. See Glushkova, V. B.

Abrams, J. C., and McLaren, M. G. Magnetic properties of anisotropic Pb ferrite (9) 218*a*.

Abrash, Muriel See Langley, Robert C.

Abrikosov, A. A. Theory of impurity ferromagnetism in semiconductors (1) 47*d*.

Abrikosov, A. A., and Genkin, V. M. Raman scattering of light in superconductors (1) 44*d*.

Abrosimov, V. A. See Boguslavskii, I. A.

Abtahi, R. Modern slag cement works of Aria Cement, Iran (3) 52*j*.

Accary, A. See Broussaud, D.

Accattino, Gianfranco See Fagherazzi, Giuliano

Achar, B. N. N. See Vedam, K.

Achener, Claude Method for depositing SiO_2 on a fused SiO_2 tube, P (1) 14*i*.

Achour, M., Delamoye, P., and Pialoux, A. Progressive reduction of HfO_2 by C: I, Confirmation by X-ray diffraction of a monovariant field. Lattice parameters of α- and β-varieties of HfO_2 at 800-2200°C (7) 185*i*.

Achour M., Pialoux, A., and Dode, M. Progressive reduction of HfO_2 by C: II, Pressure determination for monovariant equilibrium between 1300° and 1650°C—α-$HfO_2 + 3C \rightleftharpoons HfC + 2CO$ (7) 185*j*.

Achour, M., Zaug, J., and Pialoux, A. Progressive reduction of HfO_2 by C: III, Determination of lattice parameters of HfC phases by X-ray diffraction between 1000 and 2000°C (7) 185*a*.

Achutaramayya, G. See Dalgoutte, D. G.

Ackermann, Werner, and Vollhardt, Frohmut Heating open melting baths, especially galvanizing baths, enameling baths, and glass baths, P (1) 34*b*.

Ackle, W. Economical drive system for large ball mills with heavy-duty planetary gears (3) 51*b*.

Ackley, Richard H. Fiber-glass attenuator traversing system, P (3) 60*j*.

Acree, W. A. See Clark, David E.

Adachi, Hiroshi, and Shibata, Yukio Asymmetric two-site hopping model for high-electric-field-excited thermally stimulated current in evaporated Si oxide films (1) 24*b*.

Adachi, Masao, and Tanimoto, Akira Equations representing the solubility of $CaSO_4$ in pure water (7) 151*a*; Supersolubility of $CaSO_4$ hemihydrate in pure water (7) 153*c*.

Adam, Amos Device for testing the continuity of an electrical network deposited on a glass sheet, P (3) 76*h*.

Adam, S. See Pavelescu, M.

Adamenko, V. D. See Kusel'man, I. I.

Adamkovics, Annamaria, and Laszlo, Jozsef Exploitation problems of the Csoznyateto clay quarry and their solution (3) 82*b*.

Adamovskii, A. A., Bezykornov, A. I., Kiselev, O. G., and Rubtsov, A. N. Abrasive properties of plasma-synthesized TiC powders (1) 16*d*.

Adams, Anthony L. Semiconductor wafer baking and handling system, P (7) 173*g*.

Adams, Marc, and Sines, George Determination of biaxial compressive strength of a sintered Al_2O_3 ceramic (9) 229*a*.

Adams, P. Bruce See Walters, H. V.

Adams, Richard G. See Blewett, Donald A.

Adams, S. See Curtin, W. G.

Addiss, R. R., Jr. See Ghosh, Amal K.

Adelman, N. T. Equivalent electrical circuit of a multielectrode composite piezoceramic disk (9) 217*c*.

Adhikari, M., and Majumdar, M. K. Polybasic acid character of H clay minerals—multiple dissociation constants and free energy changes in neutralization reaction (1) 43*i*.

Adler, David See Bowen, H. Kent

Adler, Karl, and Ducommun, Georges Miniaturized nuclear battery, P (5) 129*g*.

Adler, Robert Torsional ceramic transducer, P (1) 29*a*.

Adler, William F. Particulate erosion of glass surfaces at subsonic velocities (7) 159*a*.

Adomavichyute, O. B. B., and Valinchene, B. A. Selection of latex cement compositions for waterproofing and as coatings (9) 196*e*.

Adrian, Norman F., and Fleming, Joseph P. Raw mix cement slurries having reduced water content, P (9) 197*d*.

Afinogenov, Yu. P., and Strepetova, I. N. Thermal analysis of the system $GaCl_3 + 3Tl = 3TlCl + Ga$ (1) 47*e*.

Afonina, N. S. See Borisova, I. I.

Agafonov, V. P., and Baidakov, L. A. Optical properties of glasses of section $As_2Se_3\text{-}P_2Se_5$ (3) 58*j*.

Agafonova, M. I. See Bakunov, V. S.

Agajanian, A. H. Bibliography on semiconductor device isolation techniques (3) 72*c*.

Agarwal, A. K. See Singh, S. P.

Agarwal, M. K., Babu, Joseph TEM studies of stacking faults in $MoSe_2$ (7) 188*e*.

Agata, Masamichi See Kawamoto, Yoji

Agatsuma, Takashi See Tomozawa, Akihiro

Agee, William A. See Lewis, Philip S., Jr.

Agett, Albert H. See Cooke, William C.

Agocs, Istvan Decorative coatings fired at high temps. (5) 123*a*.

Agrawal, R. P., and Bhuskute, M. P. Effect of forming pressure on the sintering of glass (3) 56*b*.

Agrawal, V. K. See Goel, A. P.

Agullo-Lopez, F. Structural defects in solids (1) 46*c*.

Ahlstrom, A. Osakeyhtio Glass product disintegrated by the action of water, P (5) 112*h*; Composite felt, P (9) 204*i*.

Ahmad, S. See Islam, N.

Ahn, Young-Pil, and Choi, Long Use of Yun Chun andalusite as a raw material of high-alumina refractories: I, Occurrence and general characteristics (1) 20*e*; Use of Yun Chun andalusite as a raw material of high-alumina refractories: II, Concentration and purification (1) 20*f*; Use of Yun Chun andalusite as a raw material of high-Al_2O_3 refractories: III, Effect of impurities on mullitization (7) 166*f*.

Ainshtein, R. G., Verebeichik, N. M., and Odelevskii, V. I. Glass-ceramic material for condensers, P (3) 61*g*.

Ainsworth, A. J. See Watson, E.

Ainsworth, John H., and Herron, Robert H. High temp. fracture energy of refractories (9) 209*i*.

Aisenberg, Sol Apparatus for film deposition, P (1) 30*j*.

Aisina, N. A. See Taube, P. R.

Aitken, Edward A. See Roy, Prodyot

Aitken, J. M. See DiMaria, D. J.

Aitken, John M. See Moon, D. W.

Aivazov, M. I. See Troitskii, V. N.

Aivazov, M. I., and Gurov, S. V. Magnetic properties of solid solutions in systems TiN-CrN and VN-CrN (9) 234*d*.

Aivazov, M. I., and Stepashkina, T. A. Synthesis of complex carbide phases in systems Ti-B-C and Ti-Si-C by crystallization from the gas phase (5) 145*i*.

Aivazov, V. Ya., and Porozov, Yu. P. Formation of condensate of stoichiometric composition during electron-beam evaporation of quartz in vacuum (9) 232*e*.

Aivazova, L. S., Nikolaeva, L. G., Sidyakin, V. G., and Shmatko, G. G. Twinning boundary in β-SiC single crystals (3) 93*g*.

Ajamie, Amil J. See Davidsohn, Uryon S.

Ajmera, As. P. K., and Hauser, J. R. Ion-implanted photodiode detectors in epitaxial (Ga_xIn_{1-x}) (5) 107*b*.

Akagi, Saburo Formation of the $MgSiO_3$ hydrate film on glass surface (7) 157*e*; Formation of flakes in thermos flask (9) 200*j*. See Hoshikawa, Takeshi

Akai, Shinichi, Aoyagi, Katsunosuke, and Hirata, Yasushi Thermal treatment of semiconducting compounds having one or more volatile components, P (1) 29*i*.

Akashi, Naotomo See Kushihashi, Akira

Akchulakova, S. T. See Krupnov, E. M.

Akey, John G., and Wachter, William J. Detecting malassembled nuclear fuel rods, P (1) 30*d*.

Akhtar, N. A., and Worrall, W. E. Separation of kaolinite and illite in fireclays (7) 178*j*.

Akhtyamov, Ya. A. See Basov, A. M. ; Spirina, V. S.

Akhundov, Alizakir A. O., Kondukov, Nikolai B., Vorob'ev, Kharlampy S., and Dement'ev, Valentin M. Aggregate for hardening compositions, predominantly concretes, P (9) 197*i*.

Akimitsu, Jun See Ito, Yuji

Akimov, I. A., Demidov, K. B., Ionov, L. N., and Povkhan, T. I. Effects of spectral and chemical sensitization on semiconductor properties of polycrystalline ZnO (5) 138*i*.

Akins, Alton L. Innovative architecture with brick (1) 15*d*.

Akiya, Takaji See Kawasaki, Shigetake

Akiyama, Keiichi Blending of calcareous cements (9) 194*b*. See Ohta, Masato

Akiyama, Yutaka See Hamano, Kenya

Akopyan, A. R. See Kostanyan, K. A.

Akridge, Albert N. See Bean, Kenneth E.

Akridge, James R. See Kennedy, John H.

Aksay, I. A., and Pask, J. A. Stable and metastable equilibria in the system SiO_2-Al_2O_3 (3) 92*b*.

Aksel'rod, E. I. See Vishnevskii, I. I.

Aksel'rod, L. M. See Meshalkina, N. V.

Akulich, S. S. Absorber for the neutralization of acid fumes emitted during the chemical polishing of glass (1) 5*i*.

Alam, M. Izhar, Nair, N. R., Sharma, C. D., and Ramamurti, P. V. Design and construction of a gastight furnace for sintering professional-grade ferrites (1) 25*e*.

Alapin, B. G. See Degtyareva, E. V. ; Lysak, S. V.

Al'bats, B. S., Meshik, A. F., Azarochkin, A. A., and Shelud'ko, V. V. Chain curtain with higher dust collection capacity (5) 129*g*.

Al'ber, S. I. See Novikov, G. V.

Albert, P. P. Some applications of probability to thermal testing in the enamel industry (7) 154*g*.

Alberti, A. See Galli, Ermanno

Albin, S., and Sathianandan, K. Space charge limited currents in Bi oxide films (3) 75*e*. TEM studies of stacking faults in $MoSe_2$ (7) 188*e*.

Albrecht, G. See Weihnacht, M.

Albrecht, William L. SiO_2 sols containing large-particle-size SiO_2, P (7) 179*b*.

Alcott, Graham J. Self-aligned MOS transistor, P (3) 77*e*.

Aldcroft, Derek, Barby, Donald, Lovell, Anthony L., and Quinn, James P. Fine silicas, P (9) 226*h*.

Aldebert, P., Badie, J. M., Traverse, J. P., and Buevoz, J. L. Application of a high temp. neutron diffraction apparatus to the study of refractory oxides (9) 208*a*.

Alder, David Fundamental problems in the electronic structure of transition metal oxides (7) 182*f*.

Alderson, John V., Stanley, Donald F., and Rudd, John D. Apparatus and method for molding glass objects, P (9) 204*d*.

Aleixandre Ferrandis, Vicente, Gonzalez Pena, J. M., and Sandoval del Rio, F. Properties of clays for mfg. bricks (3) 63*h*.

Aleixandre Ferrandis, Vicente, Gonzalez Pena, Maria, and Rincon Lopez, Maria Crystallization in some glasses of the Li_2O-CdO-SiO_2 system (7) 155*g*.

Aleksandriya, V. K. See Timofeev, V. I.

Aleksandrov, B. D. See Kortnev, V. V.

Aleksandrov, B. N. See Lomonos, O. I.

Aleksandrov, L. N., and Entin, I. A. Interaction of a screw dislocation with interfaces during thin film growth (1) 26*c*.

Aleksandrov, P. A. Emission of γ-quanta from a crystal in the case of hyperfine splitting (5) 139*a*.

Aleksandrov, S. E. See Ivanenko, G. P.

Aleksandrov, S. E., Krivilev, P. A., and Kolpakov, I. V. Fabrication of blast-furnace slags into chippings for use in building materials (9) 195*a*.

Aleksandrov, V. I. See Balkevich, V. L.

Alekseenko, L. S. See Ivanov, V. M.

Alekseenko, L. S., Sharova, N. M., Gul'ko, N. V., and Gudilina, A. I. Preparation and properties of some HfO_2-based products (3) 66*i*.

Alekseev, V. V. See Bugaev, N. F. ; Diesperova, M. I.

Alekseeva, A. N., Kortel, A. A., Kovalev, A. A., and Chernyavskaya, Z. Ya. Stable heads for steel teeming ladles of continuous casting machines (1) 20*d*.

Alekseeva, L. L. See Pavlov, V. F.

Alekseevskii, N. E., and Nizhankovskii, V. I. Effect of magnetic breakdown on the Hall effect in Be (1) 37*e*.

Aleksiejunas, A., Cesnys, A., and Prikhod'ko, A. V. Mechanism of quasi-reversible changes in the film heterostructures of hexagonal Se-Ag_2Se in an electric field (1) 42*d*.

Aleskovskii, V. B. See Kol'tsov, S. I.

Alexander, R. W., Jr., and Bell, R. J. Use of surface electromagnetic waves to measure material properties (7) 176*i*.

Alexandrova, V. A. See Drits, V. A.

Alexeev, A. A., Goryachev, S. B., and Strunin, B. M. Accumulation of dislocations near the crystal surface (9) 226*e*.

Alfeeva, V. G. See Simonov, K. V.

Aliev, Kh. K. See Kamilov, I. K.

Alikin, V. I., and Ovsyuk, V. N. Dependence of electroconductivity of polycrystalline Ge on temp. and pressure (5) 137*d*.

Alisauskas, A. See Jakimavicius, J.

Allen, Alfred W. Heat conservation with glasshouse refractories (3) 57*a*.

Allen, Alvin Hydrous oxide coated TiO_2, P (1) 34*i*.

Allen, Fred E., Flynn, Joseph C., Panas, Walter, and Bonino, Joseph S. Apparatus for transfer and coating of bottles, P (1) 13*f*.

Allen, T. Surface area measuring apparatus, P (3) 81*f*.

Allender, M. C. See Wilmsen, C. W.

Allersma, Ties See Hammel, Joseph J.

Alliegro, Richard A., and Coes, Samuel H. SiC diffusion furnace components, P (7) 168*g*.

Allison, James F. See Lindmayer, Joseph

Allright, J. R. See Batchelor, P. J.

Alper, Allen M. (Editor) Phase Diagrams—Materials Science and Technology, Vol. IV: The Use of Phase Diagrams in Technical Materials, B (7) 192*e*.

Alquie, G., and Kreisler, A. Low-temp. microwave absorption in natural and pyrolytic graphites (5) 141*a*.

Alt, L. Decade of gas supplying to the ceramic industry in North Bavaria (9) 224*h*.

Al'tshuler, V. M. See Gubenko, A. Ya.

Alvarez Jimenez, M. D., Perez-Bustamante, J. A., and Marti, F. Burriel Selective and sensitive complexometric determination of Ca and Mg in dolomites using Palladiazo as a metallochromic and an adsorption indicator simultaneously (1) 33*d*.

Alvarez-Estrada, D. See Duran, P.

Alyamovskaya, K. V., and Chukhlantsev, V. G. Reaction of zircon with Cs hydroxide under hydrothermal conditions (3) 91*e*.

Alyamovskii, S. I. See Glazyrin, M. P.

Amato, I., and Negro, A. Sintered glass-ceramic materials in the system MgO-Al_2O_3-Fe_2O_3-SiO_2 (9) 239*a*.

Amato, I., Negro, A., and Bachiorrini, A. Homogeneous crystallization of synthetic glasses (7) 157*c*.

Amberg, Stephen W., Doherty, Thomas E., and Heyne, Clarence A. Machine for producing a plastic-covered glass container, P (1) 14*h*; Machine for producing a plastic-covered glass container, P (3) 61*d*.

Amelinckx, S. See VanLanduyt, J. ; vanTendeloo, G.

Amelio, Gilbert F., and Hosack, Harold H. Semiconductor device having self-aligned implanted barriers with narrow gaps between electrodes, P (3) 77*f*.

Amemiya, Masahiro Oxidizing reaction in $Ni_{0.7}Fe_{2.3}O_4$ ferrite (1) 43*d*; Effect of MgF_2 on formation of sintered $MgFe_2O_4$ compacts and magnetic properties (3) 73*c*; Effects of cation addition on the disorder-order transition in Li ferrite (3) 86*h*.

Amemiya, Masahiro, Asada, S., and Ichinose, Y. Effects of Ir compounds as additives on the magnetic properties of the ferromagnetic CrO_2 (1) 38*d*.

Amemiya, Toshioki See Masuyama, Takeshi

Ametani, Kobei See Takahashi, Tatsuo

Amin, M., and Tawfik, A. Electromechanical properties of Al-doped $BaTiO_3$ (9) 217*b*.

Ammann, C. L. See Hasselman, D. P. H.

Ammann, C. L., Doherty, J. E., and Nessler, C. G. Thermal fatigue behavior of hot-pressed Si_3N_4 (7) 166*a*.

Ammar, M. M., El-Badry, Kh. M., Moussa, M. R., and Gharib, S. Thermal conductivity of some TiO_2 and Li_2O glasses (1) 12*b*.

Ammel, P. Diamond profile grinding wheels on cut glass (5) 97*b*.

Ammons, Vernon G., and Vanek, James C. Adhesion control for safety glass laminates, P (1) 13*i*.

Amosov, A. V., Bushmarin, D. B., Prokhorova, T. I., and Yudin, D. M. EPR study of the structure of B-containing quartz glasses (5) 106*a*.

Amrhein, Eva-Maria, Day, Delbert E., and Kreidl, Norbert J. Mechanical damping of Ag-containing Si-As-chalcogenide glasses (1) 9*e*; Thermally resistant chalcogenide transparencies (1) 12*e*.

Amsel, Georges See Rigo, Serge

An, R. Y. See Pavlov, V. F.

Anan'eva, A. A. See Ugryumova, M. A.

Anan'in, A. V., Breusov, O. N., Dremin, A. N., and Drobyshev, V. N. Physicochemical transformations of V_2O_5 under the action of shock waves (9) 237*e*.

Ananthanarayanan, K. P., Mohanty, C., and Gielisse, P. J. Synthesis of single-crystal BP (1) 46*c*.

Anatskii, F. I. See Baldin, V. P.

Anazawa, Shinzo, and Kuroda, Toshiro Ceramic substrate assembly for electronic circuits having ceramic films thereon for intercepting the flow of brazing agents, P (1) 28*d*.

Andeen, Carl See Fontanella, John

Andeen, Carl, Schuele, Donald, and Fontanella, John Effect of OH^- on the low-frequency dielectric constant of vitreous SiO_2 (9) 230*j*.

Anders, A. G. See Zvyagin, A. I.

Anderson, A. C. See Vorhaus, J. L.

Anderson, Anthony T. See Whalen, T. J.

Anderson, D. B. See Boyd, J. T.

Anderson, Eric Metering with low-cost rotary pumps (9) 223*g*.

Anderson, J. S. See Gai, P. L. ; Hutchison, J. L.

Anderson, Norman C. Metal-to-ceramic seals, P (3) 76*g*.

Anderson, Orson L. See Schreiber, Edward

Anderson, P. R., Bacon, F. R., and Byrum, Bernard W., Jr. Effect of surface treatments on chemical durability and surface composition of soda-lime glass bottles (7) 156*i*.

Anderson, R. M. See Shatzkes, Morris

Anderson, R. N. See Fuwa, A.

Anderson, Ralph H. Understanding what energy controllers do (5) 133*f*.

Anderson, Robert Wood Fiber glass and clay (9) 193*d*.

Andersson, Ingmar, and Eriksson, Olle Core for nuclear reactors, P (3) 78*e*.

Andersson, Thorwald Electrical properties of ultrathin gold films during and after their growth on glass (9) 217*b*; Resistance variation and field effects in the gold films after growth in an electric field (9) 218*a*.

Andery, Paulo Abib Phosphates (1) 34*b*.

Ando, Hideyuki See Furumi, Koichi

Ando, Jumpei See Mori, Masasi

Ando, Jumpei, Shinada, Tsunetoshi, and Hiraoka, Genzo Reaction of monoaluminum phosphate with Al_2O_3 and MgO (1) 19*g*.

Ando, Ken See Oishi, Yasumichi

Ando, Ken, and Oishi, Yasumichi Oxygen diffusion in MgO-Al_2O_3 spinel enchanced by phase boundaries with precipitated corundum (5) 143*g*.

Andon, R. J. L., Martin, J. F., Mills, K. C., and Jenkins, T. R. Heat capacity and entropy of WC (7) 182*j*.

Andre, L. Properties of certain exchange sites in vermiculite (3) 91*c*.

Andreev, P. A. See Abramov, V. V.

Andreev, P. A., Abramov, V. V., and Makarova, S. F. Optimum conditions for determining the rare earth element content in glasses by a complexometric method (1) 10*e*.

Andres, U. Magnetohydrodynamic and magnetohydrostatic separation—a new prospect for mineral separation in the magnetic field (9) 225*f*.

Andrew, Barry E. Determination of B in glass by atomic absorption spectrophotometry (9) 199*j*.

Andrews, Harry N. See Frisch, Erling

Andrews, Ray Glass decorating defects (3) 57*i*.

Andrianov, K. A., L'vov, S. V., Spektor, V. N., and Kamaritskii, B. A. Preparation and structure of dielectric oxide films of TiO_2 (9) 218*h*.

Andrievskii, R. A. See Spivak, I. I.

Androsenko, V. G. See Ostrovskaya, P. S.

Andrus, Ronald L., and Reade, Richard F. Glass-ceramic articles with reflective surfaces, P (5) 112*c*.

Andryukov, I. F. See Kompan, V. N.

Angel, B. R., Jones, J. P. E., and Hall, Peter L. ESR studies of doped synthetic kaolinite: I (3) 87*f*.

Angeleri, Frederico See Jordao, Marco A. P.

Angelin, Luciano See Cevales, Giacomo

Angelov, G. See Pankratov, V.

Angelov, G., Dogandzhieva, R., and Vulkova, I. Effect of gypsum on the properties of slag cement (3) 51*i*.

Angelov, G., V'lkova, I., and Dogandzhieva, R. Growth kinetics of the strength of slag portland cement samples from Ba-Mn blast-furnace slags (9) 195*c*.

Angelov, Sl. See Rusev, K.

Angenitskaya, R. B. Pneumatic gages for determining the moisture content of building materials (9) 223*i*.

Anikin, A. V. See Dovletov, K.

Anisimov, A. N. See Gurevich, A. G.

Anisimova, V. I. See Rokhlin, N. N.

Anna, Leo A., and Dixon, Kenneth C. Resin-bonded grinding wheel containing gas-filled thermoplastic resin beads, P (5) 97*f*.

Annopol'skii, V. F. See Belyaev, E. K. ; Gitis, E. B.

Anschutz, James E., Gibbs, Dale S., and Townsend, Harold J. Coated beverage container, P (3) 60*c*.

Ansell, George S., Judd, Gary, and Grove, Carl A. Thin insulating film containing metallic particles, P (3) 77*a*.

Ansimova, T. A. See Pitak, N. V. ; Usatikov, I. F.

Anthony, A. M. See Faucher, M. ; Odier, Ph. ; Rifflet, J. C.

Anthony, Michael P. See Schinella, Richard D.

Antic, Elisabeth See Coutures, Jean-Pierre

Antipov, Igor Field-effect device, P (1) 28*b*.

Antoine, J., Vivien, D., Livage, J., and Thery, J. Electron paramagnetic resonance of divalent Mn in β-alumina (1) 38*b*.

Antonov, G. I. See Onishchenko, P. V. ; Shapovalov, V. S. ; Shcherbenko, G. N. ; Zubakov, S. M.

Antonov, S. A. See Pitak, N. V.

Antonov, V. A., and Arsen'ev, P. A. Investigation of thermostimulated phenomena of the Dy ion in Y-Al and Dy-Al garnet lattices (5) 140*g*.

Antonov, V. A., Arsen'ev, P. A., Linda, I. G., and Farshtendiker, V. L. Color centers in single crystals of Li tantalate (3) 85*b*.

Antonov, V. A., Arsen'ev, P. A., Vakhidov, Sh. A., and Ibragimova, E. M. Absorption spectra of Fe group ions in the Y aluminate lattice (9) 226*d*.

Antonova, S. L. See Bogdanova, G. S.

Aoki, Susumu, Minaki, Toshiaki, and Mori, Kentaro Alkali-resistant glassy fibers, P (1) 13*j*.

Aoki, Susumu, Minaki, Toshiaki, Mori, Kentaro, and Shibata,

Kenichi Vitreous fibers with small protrusions, P (9) 206*a*.
Aoyagi, Katsunosuke See Akai, Shinichi
Aoyama, Kazuki See Morioka, Yoshio
Apak, Can See Cable, Michael
Apanovich, V. N. See Kusnitsyna, T. A.
Apers, Desire See Desaedeleer, Georges
Apostol, I., Arsenovici, L. C., Mihailescu, I. N, Popescu, I. M., and Teodorescu, I. A. Pulsed CO_2 laser irradiation of KCl crystals (7) 185*f*.
Appen, A. A. Heat-resistant protective and special coatings (1) 18*b*.
Applegate, George See Freeman, K. B.
Aradovskaya, E. M. See Solomatov, V. I.
Arabori, Tadahisa See Abe, Yoshihiro
Arai, Eisuke, Nakamura, H., and Terunuma, Yukio Interface reactions of B_2O_3-Si system and B diffusion into Si (1) 40*g*.
Arai, Eisuke, and Terunuma, Yukio Water adsorption in chemically vapor-deposited borosilicate glass films (1) 13*e*.
Arai, Tohru See Komatsu, Noboru
Arai, Yasuo See Yasue, Tamotsu
Araki, Tadashi, Asano, Kiro, and Kosugi, Junichi Oxidation-resistant coated C articles, P (3) 70*c*.
Araki, Toru See Sato, Yasuo
Arashi, Norio See Tanaka, Hirobumi
Araujo, Roger J., Beall, George H., and Sawchuk, Loris G. Sodalite-related glass compositions for production of photochromic and fluorescent articles, P (3) 62*f*.
Aravamudan, G. See Giridharan, A. S.
Arbuzina, R. F. See Dolmatov, Yu. D.
Arconada, Alain, and Papini, Francois Evolution of the Cole-Cole diagram for Au-Al oxide-Au structures as function of temp.—experimental results and theoretical interpretation (1) 38*g*.
Ardelean, I. See Stanescu, L.
Ardelean, Ioan See Surdeanu, Tudor
Arendt, Ronald H., and Dondalski, William J. Permanent ferrite magnets, P (1) 29*b*.
Arenz, E., and Knieper, D. New cement plant Ain el Kebira, near Setif, Algeria (9) 195*g*.
Aresti, A., Congiu, A., Manca, P., and Spiga, A. Thermal conductivity of CdS_xSe_{1-x} solid solutions (7) 188*d*.
Argoud, Maurice J., Jolley, Jack, and Walker, Walter L. Low-cost solar reflectors (9) 201*h*.
Argov, L. See Brenner, I. B.
Arie, Y. See Balberg, I.
Ariens, J. W. E. Method of molding brick, P (7) 163*j*.
Ariga, Kozo Apparatus for liquid-phase epitaxial growth, P (1) 27*j*.
Ari-Gur, P., and Benguigui, L. Direct determination of the coexistence region in the solid solutions $Pb(Sr_xTi_{1-x})O_3$ (3) 86*b*.
Arima, Yusaku See Fuchigami, Yoshio
Arino, Hirofumi, Cosolito, Frank J., George, Kenneth D., and Thornton, Alfred K. Primary target for the production of fission products in a nuclear reactor, P (7) 174*d*.
Arioka, Masayuki See Tashiro, Megumi
Arita, Kaneto See Pastor, Ricardo C.
Arizumi, Tetsuya See Shimakawa, Koichi
Arkhipov, I. I., and Nemchenock, Z. O. Dry glazing of ceramic tiles (5) 123*e*.
Arlt, Uwe See Zagar, Ludvik
Armand, Michel B. Mixed conductors of graphite, P (9) 219*h*.
Armas, B. Chemical vapor deposition on hot "front." Application to obtain Mo, W, Nb, and Ta borides (7) 170*a*.
Armitage, S. A. Radiation-enhanced diffusion of ion-implanted bismuth in CdS (5) 126*f*.
Armstrong, Charles R. See Sorrell, Charles A.
Armstrong, John T., and Buseck, Peter R. Quantitative chemical analysis of individual microparticles using the electron microprobe—theoretical (5) 131*i*.
Armstrong, R. D., and Bell, M. F. Effect of silicate ion addition on the dissolution of Zn in alkaline solution (9) 230*f*.
Arnett, P. C., and DiMaria, D. J. Contact currents in Si_3N_4 (9) 216*j*.
Arnold, Hanneiore See Werth, Frank R.
Arnold, R. G., and Malik, O. P. NiS-S system above 980°C—a revision (7) 184*j*.
Arnold, W. See Jaeckle, J.
Aronson, J. R., and Strong, P. F. Optical constants of minerals and rocks (5) 143*a*.
Aronson, S. S., and Cusimano, V. J. Evaluation of magnetic particle oxide products (3) 73*h*.
Aronzon, B. A., and Meilikhov, E. Z. Propagation of helicons in semiconductors in a quantized magnetic field (5) 126*e*.
Arrandale, Roy S. Pollution control in fuel-fired tanks: VIII (1) 10*g*; Pollution control in fuel-fired tanks: IX–X (3) 58*d*.
Arrandale, Roy S., and Campagna, Edward R. Plastic-coated containers have embedded friction-reducing particles, P (5) 113*f*.
Arribada, Jorge, Vilaro, Josefina, and Ward, Jose X-ray fluorescence analysis of Chilean portland cements (7) 153*i*.
Arridge, R. G. C. See Folkes, M. J.
Arroyo Menke, Juan Chilean ceramic materials (1) 34*d*.
Arsen'ev, P. A. See Antonov, V. A.
Arsen'ev, P. A., Bienert, K. E., and Potemkin, A. V. Mixed aluminates as a new class of laser materials (1) 26*h*.
Arsenev, P. A., Hassan, H. W., and Chukichev, M. V. Cathodoluminescence of some rare earth ions in $GdAlO_3$ single crystals (3) 84*g*.
Arsenovici, L. C. See Apostol, I.
Arsentsev, V. A., and Elinzon, M. P. Artificial porous aggregates from industrial tailings for production of lightweight high-strength concretes (9) 194*a*.
Arslanov, V. V. See Ogarev, V. A.
Artelt, Peter Problems of the nondestructive testing of refractory materials and the economic importance of the tests (5) 131*g*; Refractories of O steelmaking in Germany (7) 166*a*.
Artyukh, L. V. See Eremenko, V. N.
Artyushkina, N. G., Kondrat'eva, B. S., Petrovskaya, M. L., and Suikovskaya, N. G. Electrical properties of pseudobinary fluorophosphate glasses (5) 106*f*.
Arumugam, M. See Chavan, V. V.
Arzheukhova, N. B. See Kozyreva, M. S.
Arzumanov, M. A. See Klimkovich, N. S
Asada, S. See Amemiya, Masahiro
Asaga, Kiyoshi See Hamano, Kenya
Asaga, Kiyoshi, and Hamano, Kenya Initial sintering kinetics of compacts of spherical alumina particles (1) 40*b*.
Asahara, Yoshiyuki, and Izumitani, Tetsuro Density and microhardness of Cu-As-Se glasses (1) 6*f*; Sensitivity of the photon-darkening effect in Cu-As-Se glasses (1) 11*g*; Chalcogenide glasses with optical memory effects, P (5) 111*f*.
Asahara, Yoshiyuki, Izumitani, Tetsuro, and Tajima, Hidemi Glass material having a switching effect, P (3) 61*e*.
Asahi, Hajime, and Kinbara, Akira Tunneling characteristics of thin epitaxial Bi-film-SiO_2-Pb junctions (9) 242*a*.
Asam, Adolf R. Germania cores in optical fibers, P (9) 204*g*.
Asano, Kiro See Araki, Tadashi
Asano, Toshiyasu, and Sumi, Kazuyoshi High-alumina ceramic insulator compositions, P (5) 124*j*.
Aseev, A. L., Golobokov, Yu. N., and Stenin, S. I. Dislocation processes during plastic deformation of Si and Ge in the range 0.50 to 0.95 of the melting temp. (1) 37*b*.
Ashcheulov, Yu. B. See Sandulova, A. V.
Ashirov, A. See Dovletov, K.
Ashkinadze, G. Sh. See Abbakumov, V. G.
Ashworth, H. See Shacklette, L. W.
Aslamazov, L. G., and Larkin, A. I. Fluctuation magnetic susceptibility of superconductors and normal metals (5) 139*e*.
Aslanova, M. S. New types of glass fibers (1) 10*j*.
Aslanova, M. S., and Chernov, V. A. Effect of thermal treatment and adsorption of water on the surface state of quartz and Si fibers (5) 106*c*.
Aslanova, M. S., Klimanov, S. G., Rudakova, S. E., and Khazanov, V. E. EPR and ir spectroscopic studies of quartz fibers (5) 106*j*.
Asonov, A. N., Zaleskaya, I. M., Ivanov, A. B., and Krasulin, Yu. L. Composition and structure of molten microsphere of Y_2O_3-stabilized ZrO_2 (9) 208*b*.
Aspes, Pierfrancesco See Montiglio, Ugo
Assandri, F. See Faccenda, V.
Astanskii, L. Yu. Increase in capacities by modernization of equipment and intensification of technological processes (1) 3*a*.
Astier, Rene, Philippot, Etienne, Moret, Jacques, and Maurin, Maurice New crystalline phases of Te(IV) in the system Fe_2O_3-TeO_2 (7) 184*f*.
Astle, H. W. See Kaiser, Peter
Astsaturov, V. N. See Gilod, V. Ya.
Atalla, S. R. See El-Sharkawy, A. A.
Atkinson, A., Moulson, A. J., and Roberts E. W. Nitridation of high-purity Si (9) 235*g*.
Atsagortsyan, Z. A. Review of the State Standard for wall bricks (9) 207*a*.
Atterbury, Robert E. Hot top lining slabs and sleeves, P (9) 213*g*.
Aucoin, T. R. See Menashi, W. P.
Audran, Roger G. L., and Pingaud, Bernard J. Ferrous ferric oxides and their use in magnetic recording, P (5) 127*h*.
Augustin, Eugene H., Johnson, Roger E., and Rakestraw, Thomas L. Vacuum glass stripping, P (3) 62*a*.
Augustynski, Jan See Hinden, J.
Auker, B. H. See Bowen, H. Kent
Aurenz, Hans D. Apparatus for the manufacture of optical-fiber bundles, P (9) 204*c*.
Auriol, Alain, and Tritten, Paul Transparent Al_2O_3 elements fabrication, P (9) 206*i*.
Aurora, B. R. See Tiwari, R. N.
Auskern, Allan, and Horn, William Effect of curing conditions on the capillary porosity of hardened portland cement pastes (3) 51*g*.
Austin, G. S., and Leininger, R. K. Effect of heat-treating sedimented mixed-layer illite-smectite as related to quantitative clay mineral determinations (9) 222*g*.
Austin, L. G., Shoji, K., Bhatia, V. K., and Jindol, V. Some results on the description of size reduction as a rate process in various mills (7) 175*b*.
Austin, L. K. Intermittent firing of bone china (7) 169*i*.
Auten, T. A., and Radcliffe, S. V. Deformation of polycrystalline MgO at high hydrostatic pressure (7) 180*d*.
Auten, Thomas A., Radcliffe, Victor, and Gordon, Robert B. Flow stress of MgO single crystals compressed along [100] at high hydrostatic pressures (3) 87*g*.
Auzel, Francois E. Casting fluorescent lenses, P (9) 204*f*.
Avalov, V. R., Dzhabrail-Zade, E. E., and Mamedov, N. Kh. New hydrophobic additive from petroleum wastes for use in binders (5) 118*c*.
Averbach, B. L. See Rechtin, M. D. ; Renninger, A. L.
Averbakh, E. M. See Ugai, Ya. A.
Averbuch-Pouchot, Marie-Therese See Mahama, Issoufou
Avgustinik, A. I. See Ordan'yan, S. S.
Avgustinik, A. I., and Kleiner, M. B. Efficient construction of refractory gratings in kiln cars (9) 209*b*.
Avgustinik, A. I., Strakhov, V. M., and Krupkin, Yu. S. Use of Gusev stone of normal alkalinity in the production of solid porcelain (chinaware) (9) 216*g*.
Avgustinik, A. I., Strakhov, V. M., Krupkin, Yu. S., and Rotenfel'd, M. M. Structural characteristics of Gusev stone (3) 71*e*.
Avgustinik, A. I., and Zendrikov, N. N. Structural ceramics (1) 15*h*.
Avramov, I. See Gutzow, Ivan
Av-Ron, Moshe See Shatzkes, Morris
Av-Ron, Moshe, Shatzkes, Morris, Burkhardt, P. J., and Cadoff, I. Distribution of dopant in SiO_2-Si (9) 229*f*.
Axmann, Klaus See Weidemueller, Christian
Ayel, Michel Producing single crystals of semiconductor material by floating-zone melting, P (5) 128*b*.
Aymonino, Pedro J. See Baran, Enrique J. ; Botto, Irma L.
Ayub, M. See Shah, Imtiaz H.
Ayupov, B. M. See Smirnova, T. P.
Ayyar, R. See Sharma, B. B.
Azarochkin, A. A. See Al'bats, B. S.
Azarov, G. M. Use of white-firing carbonate-containing Troshkovsk clays for the production of porcelain (1) 23*i*.
Azhdarov, G. Kh., and Tagirov, V. I. Growing homogeneous monocrystals of semiconductor solid solutions (5) 140*a*.
Azrad, Anat Activation of bentonites, P (3) 83*i*.
Azuma, K. See Bajpai, R. P.
Azuma, Yoichi See Sobajima, Shigenobu
Azzam, M. I. S. See Dullien, F. A. L.

Baak, Tryggve SiO_2-$AlPO_4$ glass batch compositions, P (7) 163*a*.
Babachev, G. Current methods of studying cements (5) 98*h*; Use of converter slag from the Kremikovtsi metallurgical plant for construction purposes (9) 197*g*. See Petrova, M.
Babachev, G., and Petrova, M. Determination of the mineral composition of portland cement clinker in mixed cements by phase chemical analysis (3) 50*h*.
Babbitt, Richard W. Arc plasma fabrication of ferrite-dielectric composites (9) 216*h*.
Babcock, Gary J. See Kucsma, Michael E.
Babcock, Guy L., Bryant, Walter M., Neugebauer, Constantine A., and Burgess, James F. Method of bonding metal to nonmetallic substrates, P (9) 219*f*.
Babich, A. V. See Sitnik, N. P.
Babich, V. F. See Nadiktova, N. M.
Babich, V. I. See Koz'min, M. I.
Babinet, L. M. See Leshchinskii, D. A.
Babkina, L. A. See Pirogov, Yu. A.
Babu, Joseph See Agarwal, M. K.
Babu, V. Hari, Subba Rao, U. V., and Ramiah, K. Venkata Dislocations and ionic conductivity in KCl-KBr mixed crystals (1) 37*b*.
Baburek, J. Shale from Javorna, West Bohemia (5) 134*b*.
Baceviciute, K. See Petretis, B.
Bach, H. Ion-beam-induced radiation applied to investigations of thin surface layers on glass substrates (7) 158*d*.
Bach, H., and Baucke, F. G. K. Investigations of reactions between glasses and gaseous phases by means of photon emission induced during ion beam etching (1) 9*g*.
Bachiorrini, A. See Amato, I.
Bacon, F. R. See Anderson, P. R.
Bacon, James F. High-modulus rare earth and Be containing silicate glass compositions, P (7) 162*c*.
Badaev, Boris N. See Boreskov, Georgy K.
Bade, E. Considerations concerning overhead in connection with capital assets of large cement plants (5) 98*e*.
Badie, J. M. See Aldebert, P.
Bading, Walter Experience with refractories for soaking pits (5) 117*e*.
Baeuerlein, Rudolf, and Uhl, Dieter Improving the radiation resistance of Si transistors with a Si oxide coating, P (5) 127*d*.
Baeumler, Peter, Hoefer, Gerhard, Koerner, Tassilo, and Mohn, Heinrich Quartz glass elements, P (5) 113*i*.
Bagaeva, E. D. See Galiakberov, R. G.
Bagley, Rodney D. Extrusion apparatus for forming thin-walled honeycomb structures, P (1) 31*f*. See Lachman, Irwin M.
Bahgat, A. A. See Eissa, N. A.
Bahl, D., Roberts, J. A., and Weymouth, J. H. Basalt glass-ceramics (9) 199*h*.
Bahnck, Norman, Booth, Raymond H., Boyer, John A., and Monahan, Jack J. Methods and apparatus for bonding an article to a substrate, P (7) 173*c*.
Baiburt, L. G., Smirnov, E. I., Manusovich, M. I., and Kisilenko, N. G. Use of granulated soda in sheet glass production (5) 111*d*.
Baidakov, L. A. See Agafonov, V. P. ; Gutenev, M. S. ; Karbanov, S. G.
Baidakov, V. V., Elizarov, A. I., and Mitin, V. V. Transverse magnetoresistance of uniaxially stressed p-Ge (1) 47*i*.
Baier, V. E. See Khigerovich, M. I.
Baik, Yong Hyuck, and Choi, Sang Heul Use of alunite in ceramic raw materials: III (7) 166*c*.
Baikov, Yu. M., and Ryskin, G. Ya. Isotopic equilibrium in the system alkali metal hydroxide-H (1) 41*a*.
Bailey, D. M., Calderwood, F. W., Greiner, J. D., and Hunter, O., Jr. Reproducibilities of some physical properties of MgF2 (3) 91*a*.
Bailey, J. E., Bills, P. M., and Lewis, D. Phase stability in hafnium oxide powders (5) 143*h*.
Bailey, John E. Method of treating glass header capacitors to

reduce leakage currents, P (3) 61*h*.
Bailey, R. T. Changing pattern of raw material supplies—clay (7) 168*e*.
Bailey, Roger P. See Magee, Donald L.
Bailey, S. W. Cation ordering and pseudosymmetry in layer silicates (3) 84*h*.
Bailey, Walter A. See Magee, Donald L.
Baird, R. J., Fadley, C. S., Kawamoto, S. K., and Mehta, Madhu Concentration profiles for irregular surfaces from X-ray photoelectron angular distributions (9) 222*b*.
Baisa, D. F., Barabash, A. I., Moskalev, A. K., and Semin, G. K. Dynamics of KIO_3 phase transitions in the range 4.2 to 370 K investigated by the nuclear quadrupole resonance method (1) 37*g*.
Bajpai, R. P., Kita, Hideaki, and Azuma, K. Conductive coating for screens—its work function before and after adsorption of water and Hg (3) 72*e*.
Bajza, A., Salaj, A., Gebe, S., and Kusy, D. Autoclaved compressed cement pastes (3) 50*h*.
Bakale, D. K., Colby, B. N., and Evans, C. A., Jr. High mass resolution ion microprobe mass spectrometry of complex matrices (3) 80*e*.
Bakalkin, A. P., Balyuk, S. T., Getman, I. A., and Zhukova, Z. D. Refractory pipes for iron casting at regulatable pressure (3) 68*a*.
Bakalkin, A. P., Pitak, N. V., Starshinov, B. N., and Fedoruk, R. M. Dense kaolin refractories for the lining of a 500-m^3 blast furnace (3) 64*a*.
Bakalov, Z., and Buchvarov, S. Use of volcanic tuff in household porcelain and faience tile mfg. (3) 72*c*; Use of volcanic tuff in the production of sanitary ceramics (5) 124*e*.
Bakardjiev, I., Majdraganova, M., and Bliznakov, G. Distribution of hydroxyl groups on SiO_2 gel surface (9) 229*g*.
Bakardjiev, Ivan See Scholze, Horst
Baker, B. H. See Davis, C. D.
Baker, B. H., Brezny, Bohus, and Shultz, R. L. Role of C in steel plant refractories (9) 211*d*.
Baker, L. R. Variation in flexural strength of brickwork with beam and span loading (9) 207*e*.
Bakhcheev, V. G. See Zhavoronkov, Yu. I.
Bakker, Wate T. Periclase refractory utilizing alkyd resins, P (7) 167*h*.
Bakkin, V. G. See Popel, S. I.
Baklanov, G. M., Sidochenko, I. M., Strelkov, M. I., and Byzova, I. G. Shortcomings of the standard for sulfate-resistant portland cement (1) 3*d*.
Bakos, Jozsef, Nagy, Lajos, and Szabo, Attila Composites of lightweight silicate aggregate and cellular plastics (5) 98*d*.
Bakr, M. Y., Dayen, A. A., and Abdel-Monem, N. M. Extraction of Al_2O_3 from Egyptian nepheline syenite: X, Literature and short discussion (7) 178*e*.
Bakunov, V. S. See Poluboyarinov, D. N.
Bakunov, V. S., Vu Ngoc, Kyong, Agafonova, M. I., and Ryabtsev, K. I. Properties of synthetic mullite ceramics in relation to their purity (1) 19*c*.
Balabaeva, R. F. See Vasil'eva, I. A.
Balashov, V. A. See Suponitskii, Yu. L.
Balasubramaniam, K. S., and Paropkari, A. L. Mineralogy and genesis of bauxites of Nagardaswadi Plateau, Kolhapur District, Maharashtra State (India) (3) 90*a*.
Balazs, A., Hermann, L., and Gyulai, J. Determination of junction depth in implanted Si by "pulled" anodization and capacitance-voltage measurements (5) 137*e*.
Balberg, I., Abeles, B., and Arie, Y. Phase transition in reactively co-sputtered films of VO_2-TiO_2 (3) 74*a*.
Baldin, V. P., and Anatskii, F. I. Dehydration of phosphogypsum (5) 98*i*.
Baldridge, Donald B. Polyvinyl butyral composite interlayer for laminated safety glass, P (3) 62*b*.
Baldwin, J. R. See Mavrodineanu, R.
Baldwin, Nancy Memory tiles (7) 149*d*.
Balibardin, V. Ya. See Biletskii, S. M.
Balint, Pal See Mattyasovszky-Zsolnay, Tamas
Balint, Pal, and Mattyasovszky-Zsolnay, Tamas Application of Winkler's triangular diagram to the quality control of clays and ceramic bodies (3) 78*a*.
Balint, Pal, and Vertesffy, Katalin Drying of green ceramic bodies (5) 123*e*.
Balitskaya, Lyudmila See Balitskii, Vladimir S.
Balitskii, Vladimir S., Khetchikov, Lev N., Orlova, Valentina P., and Balitskaya, Lyudmila Amethyst crystals, P (5) 126*g*.
Balkevich, V. L., and Dovbysh, V. A. Effect of molding pressure on the high-temp. deformation properties of corundum refractories (9) 209*h*.
Balkevich, V. L., Mosin, Yu. M., Osiko, V. V., and Aleksandrov, V. I. Properties of ceramics from Gd and Er oxides (5) 119*c*.
Ball, Frank J., Braddon, David V., and Stryker, Lynden J. Low-porosity cement, P (9) 197*c*.
Ball, Fred June Schwarcz—enamelist (7) 149*c*.
Ball, Matthew C., and Casson, Michael J. Thermal studies of lead(II) salts: I, Stoichiometry of $PbCO_3$ decomposition at 1 atm pressure (5) 146*i*.
Ball, Nigel, Lythe, Trevor W., Nicholson, Anthony, and Spencer, Denzil R. F. Refractory composition, P (9) 214*e*.
Ballain, Marlyn D. System for rehydration or curing of shaped activated green ceramic structures, P (9) 216*f*.
Ballain, Marlyn D., and Hart, LeRoy D. High-strength Al_2O_3-SiO_2 catalyst substrates having high surface area, P (7) 178*i*.
Ballamy, William Charles, and Cho, Alfred Yi Simultaneous molecular beam deposition of monocrystalline and polycrystalline IIIA-VA compounds to produce semiconductor devices, P (5) 128*d*.
Ballard, C. P., and Pye, L. D. Glass formation in the Fe-soda-SiO_2 system (7) 157*j*.
Ballman, Albert A., Brown, H., Tien, Ping King, and Martin, R. J. Growth of single crystalline wave-guiding thin films of piezoelectric sillenites (1) 26*d*.
Bal'skaya, L. A., Semenova, T. V., and Fokina, L. L. Low-melting glass, P (9) 205*a*.
Balta, E. See Balta, Petru
Balta, Petru, Balta, E., and Ceausescu, V. Polymer mass distribution in silicate glasses (9) 202*a*.
Baltakmens, Talis Simple method for the determination of U in soils by two stage ion exchange (3) 80*i*.
Baltog, I., Constantinescu, M., Ghita, C., and Ghita, L. Localized levels in the PbI_2 band gap induced by thermal treatment and irradiation (1) 41*c*.
Baltramiejunas, R., Vaitkus, J., Narkevicius, V., and Niunka, V. Edge luminescence of epitaxial [single-crystal layers] CdSe at a high level of excitation (5) 125*c*; Luminescence of AlN (pure and activated with Mn and Eu) at high excitation intensities (5) 141*a*.
Balyuk, S. T. See Bakalkin, A. P. ; Tseitlin, L. A.
Balyuk, S. T., and Krushenok, L. B. Determination of the apparent porosity and apparent density of green refractories (9) 208*i*.
Bamford, Charles R. Colored glasses, P (3) 60*d*.
Ban, Z., Omejec, L., Szytula, A., and Tomkowicz, Z. Magnetic properties and magnetic structure of $ThMn_2Si_2$ and $ThMn_2Ge_2$ (1) 41*i*.
Bandyopadhyay, G. See Kennedy, C. R.
Banerjee, A. K. See Mitra, S. K.
Banerjee, B. See Chattopadhyay, J.
Banis, T., Matulionis, A., Parseliunas, J., and Pozela, J. Computer study of conditions causing absolute negative resistance of *n*-type GaAs (1) 36*d*.
Banker, Harold J. Apparatus and process for depositing electrostatically and magnetically responsive particulate matter on a conductive surface, P (7) 172*i*.
Banks, E., Chianelli,R., and Korenstein, R. Crystal chemistry of struvite analogs of the type $MgMPO_4$-$6H_2O$ (M = K, Rb, Cs, Tl, NH_4) (5) 136*d*.
Bannai, E. See Mitomo, M.
Banning, Lloyd H. Fluosilicic acid acidulation of phosphate rock (1) 34*f*.
Bansal, Girraj K. Effect of flaw shape on strength of ceramics (3) 86*g*. See Porter, D. L.
Bansal, Girraj K., Duckworth, Winston, and Niesz, Dale E. Strength-size relations in ceramic materials—investigation of a commercial glass-ceramic (5) 110*f*.
Bansigir, K. G. See Shukla, Madhu
Banyas, John D., and Ross, Edward A. Handling apparatus for hollow glass articles, P (1) 14*c*.
Barabash, A. I. See Baisa, D. F.
Barach, G. R., Bonczar, L. J., and Newnham, R. E. Elastic constants of $Pb_5Ge_3O_{11}$ from 25 to 240°C (5) 138*d*.
Baradarajan, A. See Ramachandran, S.
Baran, Enrique J. Orthovanadates and related compounds: XII, Vibrational spectrum of $Mg_3(VO_4)_2$ (7) 184*c*. See Botto, Irma L.
Baran, Enrique J., Gentil, L. A., Pedregosa, J. C., and Aymonino, P. J. Divanadates of Th (9) 229*g*.
Baran, Enrique J., Pedregosa, J. C., and Aymonino, Pedro J. Vibrational spectrum of $Pb_2V_2O_7$ (7) 188*j*.
Baranova, T. F., Kelin, Yu. I., and Kurskaya, I. N. Effect of B oxide on the physicomechanical properties of corundum ceramic (9) 209*b*.
Barantseva, S. E. See Kostyunin, Yu. M.
Barb, D. See Solacolu, S.
Barber, Howard H., and Hajduk, Thaddeus J. Apparatus for testing a hermetic seal in a glass cathode-ray tube, P (7) 161*c*.
Barbon, F. See Bonetti, G.
Barbulescu, Eva See Solacolu, S.
Barby, Donald See Aldcroft, Derek
Bar-Chaim, N., Brunstein, M., Gruenberg, J., and Seidman, A. Electric field dependence of the dielectric constant of PZT ferroelectric ceramics (9) 231*a*.
Barclay, Francis W., Frey, J. Richard, Wilson, James N., and Besant, Robert W. Fluid shutdown system for a nuclear reactor, P (1) 30*f*.
Barco, L. See Beruto, D.
Barcz, A., Rosinski, W., Turos, A., and Wielunski, L. Influence of preamorphization on concentration profiles of B implanted into Si (1) 40*i*.
Barcz, A., Turos, A., Wielunski, L., and Skrzynecka, I. Analysis of Si oxynitride layers by the complementary use of elastic backscattering and nuclear reactions (1) 35*g*.
Bard, Allen J. See Hardee, Kenneth L.
Bardhan, A. Roy, Srivastava, P. C., and Bhattacharya, D. L. Negative resistance and bistable switching in very thin Al_2O_3 films (3) 74*h*.
Bardos, L., Loncar, G., Stoll, I., and Musil, J. Method of formation of thin oxide films on Si in a microwave magnetoactive O plasma (5) 125*g*.
Bareikis, V., Galdikas, A., Matuleniene, I., and Miliusite, R. Effect of magnetic field on fluctuations of the hot holes in Ge (1) 37*e*.
Barenboim, A. M. See Kovel'man, G. A.
Barfield, Leslie T. Aluminum silicate particles having a layer of a rare earth oxide thereon, P (5) 97*e*.
Bari, R. A. Metal-nonmetal transitions—theoretical models (7) 184*a*.
Barile, Costantino Ancient Ligourian Ceramics—Majolica from Genoa and Savona, B (9) 242*d*.
Barinov, Yu. D., Ponomarchuk, S. M., Kozlova, A. P., and Kondrashova, L. A. Comparative studies of Ti enamels (9) 197*i*.
Barkalova, T. K. See Shcheglov, S. I.
Barkatt, Aaron, and Kobayashi, Yoshimitsu Pulse radiolytic investigations of iodoplatinates—application in the determination of Pt in metaphosphate glasses (1) 11*a*.
Barkleit, G., and Wolf, G. Molar heat capacity of nonstoichiometric Ni hydrides in the temp. range 10 to 20 K (1) 42*h*.
Barks, Ronald E. Sintered abrasive containing oxides from the system CeO_2-Al_2O_3-ZrO_2, P (3) 49*e*.
Barna, Laszlo Relations between alkali content and other parameters in clays on the Csoznyateto deposit (3) 83*c*.
Barna, Virgil See Lukacs, Ileana
Barnett, Irvin, and Reimschuessel, George P. Fiber strand, P (7) 175*h*.
Barnhart, Victor J. See Dufrane, Kenneth H.
Barns, R. L. See Brandle, C. D.
Baron, A. See Raoult, F.
Baron, J. See Courrier, B.
Barovier, Rosa Roman glassware in the museum of Murano and the Muranese revival of the 19th century (3) 50*b*.
Barowski, Gerhard See Sandmann, Herbert
Barraclough, K. G., and Meyer, A. CdSe-Cr_2Se_3 system and the formation of the ferromagnetic semiconducting spinel, $CdCr_2Se_4$ (1) 24*f*.
Barriere, A. See Saboya, B.
Barry, T. I., Miller, R. P., and Wilson, A. D. Dental cements based on ion leachable glasses (3) 71*b*.
Barstow, Michael Mold hot tops, P (1) 21*h*.
Barta, Cestmir, Liska, Oldrich, Louda, Jaroslav, and Ryttnauer, Emil Working, forming and finishing single crystals, P (9) 220*f*.
Bartch, Donald W. See Deal, Samuel B.
Bartel, James J., and Westrum, Edgar F., Jr. Heat capacities of Fe_3O_4 and $ZnFe_2O_4$ from 300 to 500°K (7) 182*j*.
Bartenev, G. M. Superstrength and High-Strength Inorganic Glasses, B (9) 244*d*.
Bartha, P. See Hotz, G.
Bartholin, H., Florence, D., Tcheng-si, Wang, and Vogt, O. Magnetic properties of CeSb (5) 141*c*.
Bartholomew, Roger F., Campbell, Larry E., Lewek, Stanley S., and Pierson, Joseph E. Hydration of silicate glasses in aqueous solutions, P (7) 162*d*.
Bartholomew, Roger F., Dates, Harold F., Stookey, Stanley D., and Tarcza, Walter H. Alkali metal silicate thermoplastic materials, P (3) 60*f*.
Bartkowicz, Irena, and Mrowec, Stanislaw Kinetic and electrochemical studies of the solid state reaction in the system Ag-S (1) 41*c*.
Bartmann, R. Operating experience with the new plant of the Alemannia cement works (9) 195*h*.
Bartuska, Miloslav See Kashcheev, I. D.
Baryakhtar, V. G. See Makarov, V. I.
Bar'yakhtar, V. G., Sobolev, V. L., and Kvirikadze, A. G. Attenuation damping of spin waves in antiferromagnetic substances with a magnetic anisotropy (1) 35*d*.
Barybin, A. A., Zakharov, A. A., and Nedev, N. K. Thermodynamics of chemical transport of GaAs by water vapors (3) 75*c*; Kinetics of chemical transport of GaAs by water vapors (5) 141*d*.
Basalaeva, T. S. See Evstishenkov, V. S.
Bash, S. M. Problem of hardening silicate materials with low hydration capacity (9) 196*a*.
Bashkatov, A. Ya. See Zvoleiko, P. T.
Bashkirov, L. A., and Bashkirova, M. G. Phase equilibria in ternary system MgO-ZnO-Fe_2O_3 and some thermodynamic properties of solid solutions of Mg-Zn ferrites and ZnO in MgO (5) 143*e*.
Bashkirova, M. G. See Bashkirov, L. A.
Bashunin, A. I. See Kotov, P. I.
Bashunin, A. I., Kotov, P. I., Merkulov, V. N., and Zonov'ev, V. I. Low-cycle measurements under nonisothermal loading (1) 41*c*.
Basile, Giampiero See Montiglio, Ugo
Baskakova, G. P. See Ivanova, V. M.
Basov, A. M., Sharipov, S. M., Kamenir, E. A., and Akhtyamov, Ya. A. Beneficiation of expanded vermiculite in an electric field (9) 225*c*.
Basque, Max G., Magner, James E., Surls, Joseph P., and West, Ben F. TiO_2 pigment, P (3) 83*j*.
Bassi, I. J. S. Indian cement industry (7) 151*h*.
Basso, S. See Berbenni, P.
Bassoul, P., Lefebvre, A., and Gilles, J. C. Metastable phase obtained by decomposition of nonstoichiometric spinels in the systems Ga_2O_3-MgO, Al_2O_3-NiO, Al_2O_3-AlN, and Al_2O_3-Li_2O (5) 142*b*.
Basu, M. K., Basu, S. K., and Lele, R. V. 4000 year old faience bangles from Punjab (3) 49*e*.
Basu, M. K., Mukherjee, B., and Lele, R. V. Semiconducting glazes for high tension ceramic insulators (3) 71*d*.
Basu, S. K. See Basu, M. K.
Bas'yas, I. P. Simulation of the formation processes for highly ferruginous subzones in MgO bodies during service (1) 20*a*.
Bas'yas, I. P., Sizov, V. I., Kolpakov, L. E., and Reshetnikov, N. A. Service life of refractories in an electric arc furnace for melting ferrovanadium (1) 19*i*.
Batanova, A. See Bozadzhiev, L.
Batchelor, P. J., Twigg, E., and Allright, J. R. Molds, P (7) 170*g*; Wet pressing of ceramic articles, P (7) 175*d*.

Batchelor, R. W. Modern inorganic pigments (7) 169*d*.

Batdorf, S. B. Polyaxial stress-strain relations in ATJS graphite (9) 237*g*.

Bates, J. B. Fourier transform ir spectroscopy (9) 222*i*.

Bates, J. B., and Quist, A. S. Vibrational spectra of solid and molten phases of the alkali metal tetrafluoroborates (5) 111*e*.

Bates, J. Lambert See Garnier, John E.

Batrakov, I. G. See Kopelets, V. S.

Batrakov, N. A., Gaprindashvili, A. I., and Fedotov, V. I. Refractories of the periclase-spinel system (1) 19*b*.

Batrakov, N. A., Mamykin, P. S., Koksharov, V. D., and Perepelitsyn, V. A. Refractories from molten periclase (1) 19*a*.

Batsanov, S. S., and Stas, M. N. Mixed Tl fluorohalides (9) 235*g*.

Battistella, R. See Donnet, J. B.

Baubinas, R., Gintilas, S., Martinaitis, A., and Sakalas, A. Sensitizing centers in p-CdSe single crystals (5) 145*d*.

Baucke, F. G. K. Investigation of electrode glass membranes—proposal of a dissociation mechanism for pH glass electrodes (7) 157*j*. See Bach, H.

Baudran, A., and Ducarre, R. New ceramic compositions for modern production technology (9) 215*f*.

Bauer, Briggitte See Freller, Helmut

Bauer, W. C. See Davis, R. E.

Baughman, R. J., and Lefever, R. A. Czochralski crystal growth of Na beta alumina (1) 36*d*.

Baughman, R. J., and McVay, G. L. Preparation of Na trisilicate glasses of varying water content (7) 159*g*.

Baum, Gerhard Na_2CO_3 and sulfate (9) 203*e*.

Baumard, J. F. See Odier, Ph. ; Yoshimura, M.

Baumard, J. J., Panis, D., and Ruffler, D. Electric conductivity of rutile single crystals at high temp. (9) 231*c*.

Baumer, Alain See Baussy, Genevieve

Baumgartner, Jon B., and Moran, James J. Apparatus for spray-coating product onto an article, P (7) 175*f*.

Baussy, Genevieve, Caruba, Raoul, Baumer, Alain, and Turco, G. Experimental mineralogy in the system ZrO_2-SiO_2-Na_2O-H_2O—petrogenetic correlations (5) 139*a*.

Bauwens, Robert, Lefrancois, Robert, and Garbriel, Michel Pure Na bichromate, P (5) 135*a*.

Bawa, S. S. See Mansingh, Abhai

Bayard, Michel, Pouchard, Michel, and Hagenmuller, Paul Structural, magnetic, and electrical properties of the oxyfluoride $Cr_xV_{1-x}O_{2-x}F_x$ (7) 187*e*.

Bayard, Michel, Pouchard, Michel, Hagenmuller, Paul, and Wold, Aaron Magnetic and electrical properties of the oxyfluoride formula $VO_{2-x}F_x$ (7) 183*f*.

Bayer, Helmut Producing a stack of plates, P (1) 15*c*.

Bayliss, C. R., and Kirk, D. L. Compositional and structural changes that accompany the thermal annealing of (100) surfaces of GaAs, InP, and GaP in vacuum (7) 180*e*.

Bayliss, Peter Nomenclature of the trioctahedral chlorites (1) 42*g*.

Baylor, Richard, Jr., and Brown, Jesse J., Jr. Subsolidus phase equilibria in the system SrO-B_2O_3-SiO_2 (3) 92*j*; Phase separation of glasses in the system SrO-B_2O_3-SiO_2 (5) 143*f*.

Bazakutsa, V. A., Gnidash, N. I., Sukhorukova, L. N., and Rogacheva, E. I. System $KSbS_2$-Sb_2S_3 (1) 46*g*.

Bazakutsa, V. A., Gnidash, N. I., Sukhorukova, L. N., and Vasil'eva, M. P. System $KSbSe_2$-Sb_2Se_3 (1) 46*f*.

Bazanova, I. M., Zhbanov, B. V., and Kosarev, V. Yu. Production of glass tubes with selective spectral transparency (3) 58*h*.

Bazhan, A. N. Weak ferromagnetism along the trigonal axis in antiferromagnetic $CoCO_3$ and $NiCO_3$ (9) 242*d*.

Bazhovskaya, N. V. See Abdullaev, G. B.

Bazuev, G. V. See Zubov, V. G.

Beal, Donald F. See Harrington, Roy V.

Beales, Keith, J. See Newns, George R.

Beall, George H. See Araujo, Roger J.

Beall, George H., Brydges, William T., III, Ference, Joseph, and Kozlowski, Theodore R. Glass-ceramic articles exhibiting high frangibility, P (5) 112*c*.

Beall, George H., and Chyung, Kenneth Differential densification strengthening of glass-ceramics, P (5) 112*e*.

Beall, George H., and Rittler, Hermann L. Basalt glass-ceramics (9) 199*i*.

Beaman, Donald R., and File, D. M. Quantitative determination of asbestos fiber concentrations (7) 176*a*.

Bean, J. See Magee, T. J.

Bean, Kenneth E., and Akridge, Albert N. Dielectric isolation to provide backside collector contact and scribing yield, P (3) 76*i*.

Bear, J. Identification and removal of stain from zircon concentrates: I (9) 225*d*.

Beasley, Glenn H., and Cartier, Peter G. Removing S compounds from gases, P (7) 178*a*.

Beatty, C. L. See Simon, J.

Beaver, Robert I., II See Roberson, Glenn A., Jr.

Bebee, Jack G. See Abita, Joseph L.

Bebinger, Jack E. Shaped aperture in enameled sheet metal, P (3) 55*c*.

Becher, Paul F. Fracture-strength anisotropy of sapphire (3) 88*g*; Abrasive surface deformation of sapphire (5) 135*e*.

Bechere scu, D. See Marx, F.

Becker, Manfred UO_2 powder, P (9) 221*g*.

Bedetti, Gianfranco, Pieri, Giovanni, Ducato, Aldo, and Held, Llewellyn J. TiO_2 with a controlled particle size, P (3) 83*i*.

Bedford, S. E. Survey of British pot melting practice (1) 12*f*.

Bednarik, J. See Fink, W.

Bedrik, O. M. See Pavlov, V. F.

Beekmans, N. M., and Heyne, L. Correlation between impedance, microstructure, and composition of calcia-stabilized ZrO_2 (9) 228*f*.

Beer, Darl L. See Cooper, Leland L.

Beer, H., and Richarz, W. Attack on polycrystalline alumina by melts containing V (.

Begley, Edward R. See LaDue, Stephen E.

Behalova, Vera Adolf Loos and glass design—Loos' correspondence with Stephan Rath (3) 49*g*.

Behnisch, A. Bohemian lead crystal (1) 5*f*; Advantageous cooperation (design) between college and industry (1) 22*e*.

Behrendt, R. Multiplication factors and breakdown voltages of Si Read diodes with wide depletion regions (1) 26*i*.

Behrens, Richard Colemanite and Gerstley borate (7) 149*a*; Cone 6 oxidation glazes (7) 149*b*; Sn and Ca in glazes (7) 149*f*; Four-three-two-one glazes (9) 193*e*; Wide-range firing glazes (9) 193*j*; Ceramic Glazemaking, B (9) 242*f*.

Behunin, Gage B. Method for prefabricating brick panels, P (5) 115*a*.

Bejat, Jean, Braguier, Michel, Tueta, Roger, and Vistosi, Raoul Coating apparatus, P (9) 221*h*.

Beke, B. Grindability determinations (3) 80*d*.

Bekker, L. Kh., Matyusha, S. I., Rubleskii, I. P., and Rykov, L. V. Refining of Pb-containing glasses in electric furnaces with SnO_2-based electrodes (9) 203*b*.

Bekker, P. C. F. Influence of energy cost on the future of structural ceramics (3) 63*b*; Influence of energy cost on the future of structural ceramics in comparison with alternative building materials (3) 81*d*.

Belabaev, K. G., Kaminskii, A. A., and Sarkisov, S. E. Stimulated emission from ferroelectric $LiNbO_3$ crystals containing Nd^{3+} and Mg^{2+} ions (1) 27*j*.

Belash, I. T., and Ponyatovskii, E. G. Phase diagram of CdSb semiconductive compound to 80 kbar (3) 90*i*.

Belaya, A. D. See Roslov, S. A.

Belcher, C. B. See Hodges, R. J.

Beldem, J. See Macrovic, D.

Belding, Jeffrey H., and Letzgus, Erwin A. MgO-Al_2O_3 spinel, P (7) 167*e*.

Belekhov, V. B. See Patrusheva, V. A.

Belikova, M. I. See Ivannikova, R. V.

Bell, Frank R. Abrasive compact of cubic BN, P (7) 166*j*.

Bell, M. F. See Armstrong, R. D.

Bell, P. M. See Mao, H. K.

Bell, Peter G. See Mills, Alfred L.

Bell, R. J. See Alexander, R. W., Jr.

Bell, Reuben H. See Morrison, Albert R.

Bell, Robert P. See Lester, Lawrence

Belleri, G. See Beruto, D.

Belmont, M. R. Three-dimensional analysis of ionic mobilities at high fields in amorphous solid and liquid dielectrics (1) 47*e*.

Beloborodova, T. I. See Rokhlin, N. N.

Belogrudov, A. G. See Fain, I. A.

Belomyl'tsev, A. I. See Samsonov, G. V.

Belousenko, A. P., Spivak, I. I., Vyskrebtsev, V. P., and Velina, O. F. Effect of additives on the structure of Y_2O_3 ceramics (3) 86*d*.

Belousova, M. Ya. See Melikhov, I. V.

Belov, K. P., Gapeev, A. K., Levitin, R. Z., Markosyan, A. S., and Popov, Yu. F. Magnetic anisotropy and magnetostriction of Y-Tb garnet-ferrites (9) 234*b*.

Belov, K. P., Nikitin, S. A., Bisliev, A. M., and Savitskii, E. M. Magnetic properties of compounds of rare-earth metals and Fe of the type RFe_3 [R = Y,Dy,Ho,Er] (1) 41*h*.

Belov, K. P., Valyanskaya, T. V., Mamsurova, L. G., and Sokolov, V. I. Specific heat of the antiferromagnetic garnet $Ca_3Mn_2Ge_3O_{12}$ (1) 45*g*.

Belov, N. V. See Gorbunov, Yu. A. ; Kazak, V. F. ; Kharitonov, Yu. A. ; Maksimova, N. V. ; Naumova, I. S. ; Shashkin, D. P.

Belov, S. F., Igumnov, M. S., Zhitenko, L. P., and Smirnova, I. V. Systems M^IF-M^{II}-Ln_2O_3 (M^I = Li, Na, K, Rb; M^{II} = Mg,Ca,Sr,Ba; Ln = La,Nd) studied by isothermal method (9) 241*d*.

Belov, V. F., Khimich, T. A., Shipko, M. N., and Zheludev, I. S. Magnetic structure and localization of Co^{2+} and Fe^{2+} ions in hexagonal ferrites (1) 41*j*.

Belova, L. F. See Kutolin, S. A.

Belozerov, B. P., Turlakov, V. N., and Sheinkman, A. I. Need for experimental data for the Fourier analysis of the diffraction line profile (1) 42*i*.

Belyaev, E. K., and Annopol'skii, V. F. DTA and DTG of the kinetics of K titanate formation (9) 230*a*.

Belyaev, E. K., Annopol'skii, V. F., Panasenko, N. M., and Khomyakova, V. V. Processes of reaction in Na and K carbonates with Nb_2O_5 (9) 238*e*.

Belyaev, I. N. See Razumovskaya, O. N.

Belyaev, I. N., and Evstifeev, E. N. New oxyfluoride with pyrochlore crystal structure (1) 42*d*; Systems KF-PbZr-O_3-NdTaO_4 and "$Pb(BO_2)_2$"-$PbZrO_3$-NdTaO_4 (1) 47*a*.

Belyaev, I. N., and Voropanova, L. A. System Pr_2O_3-W-O_2 (1) 46*i*.

Belyaev, R. A., Smolya, A. V., Vavilov, Yu. V., and Shalimova, I. F. Effect of additives on the thermal conductivity of BeO (3) 86*e*.

Belyaeva, L. A. See Gin-yar, E. A.

Belyakov, Yu. M. See Volkov, V. L.

Belyakova, N. V. See Orlova, G. M.

Belyanina, N. V. See Chizhikov, D. M.

Belyaninov, Yu. N., Grunin, V. S., Zoan, Z. N., and Ioffe, V. A. Conductivity investigation of CaV_2O_6 (1) 36*f*.

Belyantsev, A. M., Kozlov, V. A., and Valov, V. A. Nonreciprocal effects in inhomogeneous *n*-GaAs in crossed E- and H-fields (1) 26*i*.

Belyuga, Yu. V. See Zakolodyazhnaya, O. V.

Belyustin, A. V. See Stepanova, N. S.

Bendeliani, N. A. Polymorphism of oxyfluorides of Sc, Y, and rare-earth metals at high pressure (9) 237*i*.

Bender, David J., and Kubovich, Frank S. Apparatus for cutting a mat of bonded fiber, P (3) 79*c*.

Bendorius, R., Irzikevicius, A., Kindurys, A., and Tsvetova, E. V. Absorption spectra of $Ag_8M^{IV}Se_6$ and $Ag_8GeX_6^{VI}$ compounds (3) 84*a*.

Benecke, Theodor See Korsten, Andreas

Benerito, Ruth R. See Ward, Truman L.

Benezech, Gilbert See Coutures, Jean-Pierre

Benguigui, L. See Ari-Gur, P.

Benguigui, L., and Bethe, K. Diffused phase transitions in $Ba_xSr_{1-x}TiO_3$ single crystals (9) 229*h*.

Benidze, O. M. See Krinchik, G. S.

Benjamin, James A. See Casterline, Edgar T.

Bennett, Henry James Improved energy efficiency by radiation-convection heating at low and medium temps. (5) 132*i*.

Bennett, Herbert S., and Forman, Richard A. Absorption coeffs. of highly transparent solids—photoacoustic theory for cylindrical configurations (9) 198*j*.

Bennett, J. G., and Sladek, R. J. Elastic constants of $(Ti_{1-x}V_x)_2O_3$ at low temps. (7) 181*j*.

Bennett, William R. See Inns, David H.

Benson, Gustav E., and Yakuboff, Paul D. Impregnating and coating fibrous strands, P (3) 61*a*.

Bensted, John High-temp. anhydrite (α-$CaSO_4$) (3) 51*i*; Uses of Raman spectroscopy in cement chemistry (5) 102*j*; Potential for Raman spectroscopy in cement chemistry (7) 152*e*.

Bentley, J. Buckley brick industry (3) 62*g*.

Bentman, David M. Porcelain-covered dental bridge, crown, and the like, P (1) 24*f*.

Benton, Samuel T., and Masters, David R. B_4C articles, P (3) 69*b*.

Bentur, Arnon Effect of gypsum on the hydration and strength of C_3S pastes (7) 151*e*.

Bentur, Arnon, and Ish-Shalom, M. Properties of type K expansive cement of pure components: IV. Hydration of mixtures of C_3S with pure expansive component (5) 101*i*.

Benyei, Karoly Hungarian experiences with a Humboldt-type clinker mfg. system (3) 52*a*.

Benz, Mark C. Sintered Co-rare earth intermetallic product, P (3) 77*f*; Liquid sinterd Co-rare earth intermetallic product, P (3) 77*g*.

Beppu, Tatsuro, Iwamoto, Masami, and Sekiwa, Tetsuo Green light-emitting GaP device, P (5) 127*b*.

Berard, M. F. See Visser, R. G.

Berardi, Maria Cristina, Chiocchio, Gerardo, and Collepardi, Mario Influence of precuring on the autoclave hydration of quartz-tricalcium silicate mixtures (3) 52*b*.

Berbenni, P., Massarant, E., Basso, S., and Molso, G. D. Treatment of waste from enamel plants (1) 5*b*.

Berchtold, Jean Ferrite materials with improved magnetic and mechanical properties, P (7) 172*e*.

Berdennikova, E. V. See Krinchik, G. S.

Berdichevskii, I. M. See Stukalina, K. A.

Berdov, G. I. See Meshcheryakov, N. A.

Berenshtein, T. A. See Chelishchev, N. F.

Beretka, J., and Brown, T. Utilization of manganiferous industrial wastes and by-products in the manufacture of colored bricks (7) 163*g*.

Berezhnoi, A. I., and Krasnikova, M. D. Effect of ion-exchange treatment on the structural, mechanical, and chemical properties of photosensitive glass and glass-ceramic (5) 105*i*.

Berezhnoi, A. S. Multicomponent silicate systems (1) 42*i*.

Berezhnoi, I. N., Churochkin, V. N., and Borovkov, K. A. Effective operating conditions for the dragline excavator ESh-10/70 A in kaolin mining (9) 225*a*.

Berezina, G. M. See Gural'nik, P. B.

Berezovskaya, V. A. See Shteinberg, Yu. G.

Berg, Allan C., Forgensi, Rudolph, and Lipani, Anthony F. Process of making ferrite materials, P (9) 219*j*.

Berg, Joseph E., and Brown, Randolph E., Jr. High vacuum deposition apparatus, P (3) 76*d*.

Berg, Morris See Kudza, Thomas M. ; Somers, Arthur V.

Berger, A. S. See Pushnyakova, V. A.

Berger, Iris Development of body structure in commercially fired porcelain: II (1) 23*b*.

Berger, Iris, Kuechler, Heinz, and Jarczak, Klaus Measurement methods for the technological investigation of ceramic slips (1) 23*j*.

Berger, L. I., and Petrov, V. M. Electrophysical properties of Se doped with Ta (5) 139*a*.

Berger, R. See Ericson, J. E.

Bergeron, Clifton G. See Herron, L. Wynn ; Marlor, Alan J. Rita, R. A.

Berglund, Ake, and Suvanto, Antti Attachment and locking of finger control rods in a nuclear reactor of BWR type, P (5) 129*c*.

Bergman, J. G., and Crane, G. R. Structural aspects of nonlinear optics-oxide systems ABO_x (7) 187*d*.

Berjoan, R. See Mizuno, Masao

Berk, Charles W. See Sitek, George J.

Berkenblit, Melvin See Takamori, Takeshi

Berkenblit, Melvin, Lussow, Robert O., and Reisman, Arnold Glass composition, P (9) 205*a*.

Berkheiser, V., and Mortland, M. M. Variability in exchange ion position in smectite—dependence on interlayer solvent

(7) 188*i*.

Berkovich, Serge A. Recovery of TiO_2 from ores, P (1) 35*a*.

Berkovich, T. M., and Shlomenko, A. A. Effect of volumetric concentration of Ca silicate hydrates on the strength of large-size corrugated asbestos-cement sheets (9) 194*h*.

Berkovits, V. L. See Dyakonov, M. I.

Berkovits, V. L., Ekimov, A. I., and Safarov, V. I. Optical orientation in a system of electrons and lattice nuclei in semiconductors—experimental study (1) 42*i*.

Berkowicz, R., and Kletis, B. P. Optical transmission modulation and light scattering by acoustoelectric domains in CdS (3) 90*e*.

Berkowski, M. See Jagielinski, T.

Berman, H. A. Determination of low levels of chloride in hardened portland cement paste, mortar, and concrete (5) 98*j*.

Bernard, Claude Treatment of irradiated nuclear fuel, P (9) 221*f*.

Bernard, Jacques L. Apparatus for the formation of coatings on a substrate, P (5) 126*h*.

Bernath, Eva Determination of relative γ intensity (3) 82*i*.

Berndt, W. Unloading and packing [directly] from tunnel kiln cars and its dependence on the method of setting (5) 115*h*.

Berndt, Walter, and Lauff, Helmut F. Stacking of bricks, P (1) 16*c*.

Bernei, I. I., Kuznetsova, T. V., and Soboleva, K. L. Effect of trace components of clinker and its microstructural characteristics on the properties of asbestos cement (9) 194*g*.

Berney, Jean C. Quartz oscillator having very low power consumption, P (1) 29*f*.

Bernhard, Dieter Correlation between lead release by DIN 51 031 and the amount of lead absorbed by common foodstuffs (5) 122*j*.

Bernhardt, C., and Heegn, H. Mechanical activation of quartz and limestone in laboratory mills of different types (5) 130*b*.

Bernhardt, Claus See Husemann, Klaus

Bernstein, Harold See Kurtz, Anthony D.

Berrada, Abdellatif See Salmon, Roger

Berry, R. S., and Pritchet, W. C. Elasticity and density of amorphous Al_2O_3 (3) 56*j*.

Bertaut, E. Felix See Samaras, D.

Berthold, Frank See Plesslinger, Gertraud A. A.

Bertolani, M. Relation between climate and frost resistance of ceramic wall and floor tile (9) 216*c*.

Bertoldi, Gerhart A. Feasibility of light optical and scanning electron microscope study of brick bodies with particular regard to the importance of the glass phase (5) 114*f*. SEM investigations on expanded perlites (3) 53*i*.

Bertolotti, Raymond L. Dependence of fracture strength on strain rate in polycrystalline Al_2O_3 (9) 229*a*.

Bertoti, I. See Podor, B.

Bertulis, K. See Dapkus, L.

Bertulis, K., and Stankevicius, M. Kinetics of stimulated recrystallization of CdSe films (1) 41*h*.

Berul, S. I., and Grishina, N. I. Reaction of Li metaphosphate with Al_2O_3 (1) 44*j*.

Berul, S. I., and Sizova, N. V. Reaction of Cs metaphosphate with Fe oxide (1) 44*h*.

Beruto, D., Barco, L., and Belleri, G. Stability of refractory materials under industrial vacuum conditions—Al_2O_3, BeO, CaO, Cr_2O_3, MgO, SiO_2, TiO_2 systems (9) 211*j*.

Besant, Robert W. See Barclay, Francis W.

Besenhard, J. O., and Eichinger, G. High energy density Li cells: I, Electrolytes and anodes (9) 232*h*.

Beske, H. See Hilpert, K.

Bespyatyi, V. A. See Samsonov, G. V.

Bessaraba, V. I. See Paderno, Yu. B.

Besse, Sumner B. See Tiernan, Robert J.

Besson, Andre Method of producing vacuum-tight soldered seals between ceramic and Al components [evacuated envelopes] incorporating the components sealed by said method and vacuum tubes incorporating said envelopes, P (9) 205*h*.

Besson, G., Estrade, H., Gatineau, L., and Tchoubar, C. Kinetic survey of the cation exchange and of the oxidation of a vermiculite (5) 141*b*.

Besson, Huguette, Caillere, Simonne, and Henin, Stephane Formation conditions for some bicarbonates similar to hydrotalcite (3) 88*c*.

Besson, J. See Hertz, D.

Besson, Maurice Presence of kyanite in the gneisses of the Aston massif (5) 144*h*.

Best, Donald F. See Bolton, Anthony P.

Best, Ralph E. See Dufrane, Kenneth H.

Bethe, K. See Benguigui, L.

Bethea, C. G. Electric field induced second harmonic generation in glass (5) 106*d*.

Betikov, I. E., Zholnerovskii, D. A., and Ravinskaya, L. I. Selective grinding of combustible agloporite in a jaw crusher (9) 221*e*.

Bettonica, Luigi Hydraulic press for molding tiles and plates of ceramic materials, P (3) 79*h*.

Betts, W. D. Use of tar and pitches in refractories for O steelmaking (7) 166*e*.

Betzer, P. R. See Eggimann, D. W.

Beun, J. A. See Orton, J. W.

Beutelspacher, H. See vanderMarel, H. W.

Beyer, Hermann Practical interference microscopical surface measurements, particularly in semiconductor technology and microelectronics (1) 32*j*.

Beyer, M. E., Bond, A. M., and McLaughlin, R. J. W. Simultaneous polarographic determination of ferrous, ferric, and total iron in standard rocks (1) 33*d*.

Beyersdorfer, Hans Direct electrical heating of a small tank (1) 7*a*.

Beyersdorfer, Kurt, Hammer, Josef, and Soldavini, Heinz Release of Pb and Cd from on-glaze colors (5) 124*b*.

Beynon, T. D. Comparison of energy multigroup transport and diffusion theory solutions of the fast neutron penetration problem (1) 29*h*.

Bezborodov, M. A. Viscosity of Silicate Glasses, B (9) 244*g*.

Bezrodnyi, V. G. See Dubrovina, N. V.

Bezykornov, A. I. See Adamovskii, A. A.

Bhaduri, A. See Keer, H. V.

Bhandari, S. S., and Varma, J. Moessbauer studies of ilmenite single crystals (5) 142*i*.

Bhartia, P. K., and Mieher, R. L. Study of EPR in Ti_2O_3 (7) 187*j*.

Bharwani, Govind See Garard, James H.

Bhaskar, M. C. See Raaski E.

Bhat, C. V., Guaker, R., Urnes, Sigmund, and Jose, V. R. X-ray diffraction studies of glasses in the systems Na_2O-MO-SiO_2 (M = Mg,Zn,Ca,Ba) (1) 13*e*.

Bhatia, V. K. See Austin, L. G.

Bhattacharya, D. L. See Bardhan, A. Roy

Bhuskute, M. P. See Agrawal, R. P.

Biagini, E. See Passerone, A.

Biardi, Giuseppe Grinding wheel manufacture, P (9) 193*h*.

Bibbo, P. P., and Peacos, M. M. Electrostatic precipitators—how good PM keeps them going (5) 129*j*.

Bichurina, A. A. Thermal stability of Dinas brick (1) 20*i*.

Bicik, Vladislav, and Kaspar, Jan Device for separating grinding elements and ground suspension in an agitator mill, P (1) 31*e*.

Bickerdike, Robert L., and Hughes, Garyth C articles, P (1) 21*b*.

Bickerton, G. F. C., and Cato, F. A. Device for cutting or marking out sheet material, P (1) 14*c*.

Bickling, Archie L., Jr., See Pardee, Robert P.

Biddell, David C., Dawson, Graham R., and Sansome, Dennis H. Vibratory forming of materials, P (3) 79*b*.

Biedrzycki, K., Sujak-Lesz, K., and Lesz, J. Production of free charge carriers (exoelectrons) over the surface of powdered ceramics $BaTiO_3$ + 5% Pb (5) 126*c*.

Biefeld, Lawrence P., Foley, Kevin M., and McCombs, Frank P. Glass fibers coated with Si containing aminimide compounds, P (7) 161*h*; Organosilicon derivatives coated on glass fibers, P (7) 162*e*.

Bieganski, Z., Opyrchal, J., and Drulis, M. Antiferromagnetic transition in Dy dihydride. Low-temp. heat capacity studies (1) 35*j*.

Bielfeld, R. M. See Johnson, Ralph T., Jr.

Bienenstock, Arthur See Liang, K. S.

Bienert, K. E. See Arsen'ev, P. A.

Biffi, G. See Vincenzini, P.

Biktimirova, V. Kh. See Boltaks, B. I.

Bildstein, Hubert, Knotik, Karl, and Leichter, Peter Spherical particles, P (7) 168*j*.

Biletskii, S. M., Burmenko, E. Yu., Balibardin, V. Ya., and Churyumov, V. A. Curve of axis of rotary kiln shell during operation (1) 2*g*.

Billington, Colin See Jago, John J.

Bills, P. M. See Bailey, J. E.

Billy, Michel See Brachet, Daniel

Bilsby, C. F., and Moore, D. A. Twinning in monoclinic Eu_2O_3 (9) 242*a*.

Bindell, J. B. SEM and related electron beam techniques in integrated circuit technology (3) 75*a*.

Binder, Dietfried Operational control of melts with the help of densities and other laboratory data (5) 108*c*.

Bindloss, W. See Sleight, Arthur W.

Binkele, L. Systematic error calculation of high-temp. thermal conductivity measurements made by a modified Kohlrausch technique (1) 33*e*.

Binkowski, N. J., Heitzenrater, R. F., and Stephenson, D. A. Surface analysis of a treated soda-lime glass (5) 110*c*.

Binns, J. V., and Dewsberry, R. Audiofrequency dielectric absorption in porous multicrystalline samples of Ba oxide (5) 124*e*.

Biochinova, E. S. See Yunnikova, N. V.

Biolsi, W. A. See Blank, Stuart L.

Bir, G. L. See Pikus, G. E.

Birchall, James D., and Cassidy, John E. Refractory compositions, P (7) 168*c*.

Birchall, James D., Cassidy, John E., Rolfe, Nicholas, and Miles, Clifford G. Complex phosphates, P (1) 21*g*.

Birchall, T., and Sleight, A. W. Oxidation states in $VSBO_4$ (9) 236*b*.

Birkle, Adolph J. See Gardner, Larry E.

Birks, Laverne S., and Fatemi, Mohammad Multielectrode apparatus and techniques to prepare aligned asbestos fibers on a thin substrate, P (9) 219*h*.

Biryukovich, K. L. Compatibility of glass fibers with mineral and polymineral matrices in glass-reinforced materials (9) 199*c*.

Bisbee, D. L. Splicing SiO_2 fibers with an electric arc (7) 159*e*. See Chinnock, Edwin L. ; Gloge, Detlef C. ; Smith, Peter W.

Bisbee, D. L., and Smith, Peter W. All-glass optical-fiber tapes (5) 104*i*.

Bishay, Adli M. See Tricker, M. J.

Bishui, B. M., and Ghosh, D. K. Mineralogy of Korvi attapulgite (1) 34*i*.

Bisliev, A. M. See Belov, K. P.

Bisson, G. See Debras-Guedon, J.

Bissot, R. See Schramm, R.

Biswas, A. B. See Bodas, M. G. ; Keer, H. V.

Biswas, Dipak R., and Fulrath, Richard M. Strength and fracture in glass matrix composites (3) 59*c*.

Blackburn, Douglas H. See Sanders, David M.

Blaha, Robert F. Ceramic impedance device, P (9) 219*d*.

Blair, Gerald E. See Parsons, William F.

Blakely, J. M. Introduction to the Properties of Crystal Surfaces, B (3) 94*d*.

Blakely, John A. Black dielectric mask on white substrate, P (9) 219*c*.

Blakeslee, A. Eugene See Mader, S.

Blanc, Francois See Pradoux, Denise

Blanc, J. See Abrahams, M. S.

Blanch, Julian E. See Sherif, Fawzy G.

Blanchin, M. G., and Fontaine, G. Transmission electron microscope observatons of deformed rutile (TiO_2) (5) 146*i*.

Blanco, Louis A. Ceramic decalcomanias including design layer free of glass, P (1) 24*a*. See Wenning, William F., Jr.

Blanco, Louis A., and Wenning, William F., Jr. Ceramic decalcomania, P (9) 216*i*.

Blank, Stuart L., and LeCraw, Roy C. Magnetic devices utilizing garnet epitaxial materials, (9) 219*c*.

Blank, Stuart L., Nielsen, J. W., and Biolsi, W. A. Preparation and properties of magnetic garnet films containing divalent and tetravalent ions (9) 238*a*.

Blanke, H. J. Spray lubrication technology in practice (3) 53*b*.

Blankenship, Michael G. Glass optical wave guide, P (7) 161*j*.

Blaszczyk, G. See Tiggesbaeumker, Peter

Blasse, George Vibrational spectra of solid solution series with ordered perovskite structure (5) 147*e*. See Hoefdraad, H. E.

Blewett, Donald A., and Adams, Richard G. Rigid fibrous panel, P (1) 15*d*.

Bley, K. Erich Krause—dedicated to stoneware (1) 1*b*.

Bliemeister, Robert M. See Shy, James L.

Blinov, L. N. See Orlova, G. M.

Bliznakov, G. See Bakardjiev, I.

Blokh, S. A. Thermoelastic stresses in ceramic tiles during their firing (9) 216*e*.

Blokhina, G. P., and Neiman, M. I. High dielectric glass for high-voltage ceramic capacitors, P (1) 14*d*.

Blokhina, L. I. See Chizhikov, D. M.

Blome, James C., Goodbrake, Chris J., O'Brien, Marvin E., and Vance, Macy W. Fibrous insulation, P (5) 121*i*.

Bloodworth, David J. See Clark, Peter S.

Bloomer, C.P. See Dargan, C. L.

Bloomer, Derek More slip, less slip-ups for tile makers (9) 215*e*.

Bludov, B. F. See Ved, E. I.

Blum, Joseph M., Crowder, Billy L., and McGroddy, James C. Double heterojunction diode laser, P (5) 127*d*.

Blumentahl, Robert N. Electronic conduction in oxides at elevated temps. (7) 181*h*.

Blust, Henry L., Lindburg, Norman L., and Henry, Dale V. Anchoring metallic coated leads to ceramic bodies, P (5) 126*h*.

Bobokov, Yu. Ya. See Markelov, B. G.

Bobrysheva, N. P., and Brach, B. Ya. Nature of interaction between V atoms in V_2O_3-Al_2O_3 solid solutions (5) 142*d*.

Bobrysheva, N. P., Brach, B. Ya., and Ikorskii, V. N. Magnetic permeability of solid solutions Ti_2O_3-Al_2O_3 and V_2O_3-Al_2O_3 at high temps. (1) 41*g*.

Bocharov, L. D. See Bugaev, N. F. ; Simonov, K. V.

Bocharov, V. K. See Ved, E. I.

Bocharova, Tamara T. See Vereshchagin, Leonid F.

Bochek, G. L., Grishaev, I. A., Kalashnikov, N. P., and Kovalenko, G. D. Coherent bremsstrahlung by electrons and positrons in Si and Nb crystals (5) 136*a*.

Bock, Gustav See Ebenhoech, Franz L.

Bock, Peter P. Thermal-shock testing of ceramic materials by air quenching (5) 132*g*.

Bodas, M. G. See Keer, H. V.

Bodas, M. G., Keer, H. V., and Biswas, A. B. Structural and thermal analysis of Mn oxides (3) 92*e*.

Bodelind, Bo T. K. See Jonsson, Bo R.

Bodnar, J. See Cisowski, J.

Bodnar, M. P. See Gurzan, M. I.

Bodrova, L. G. See Koval'chenko, M. S.

Boeder, Horst Fiber-reinforced composite members, P (5) 121*h*.

Boehm, Horst Dielectric properties of β-eucryptite (9) 229*g*.

Boehm, L. See Reisfeld, Renata

Boehmer, H. H., and Hennicke, Hans Walter Relation between structure and several properties of enamels for chemical ware (7) 154*e*.

Boenschen, Waldemar See Weidemueller, Christian

Boesch, L. P., and Moynihan, C. T. Effect of thermal history on conductivity and electrical relaxation in alkali silicate glasses (1) 7*j*.

Boettner, H. See Roeppischer, H.

Boewing, H. A., and Gast, T. Particle size distribution analyzer for dusts, P (3) 81*f*.

Bogatyrev, I. S. See Shakhtin, D. M.

Bogatyrev, L. S. See Chernina, L. L.

Bogatyreva, M. M., and Scheinmann, E. Sch. Reduction of fuel consumption in the production of bricks and clay blocks (3) 63*j*.

Bogdanova, G. S. See Frolova, A. A.

Bogdanova, G. S., Antonova, S. L., Kislyak, V. I., and Rashina, E. P. Effect of charge composition on the volatilization of B_2O_3 (5) 105*f*.

Bogdanova, G. S., Antonova, S. L., Raevskaya, E. I., and Kislyak, V. I. Opacified phase-separating glass for continuous rolling (1) 10*j*.

Bogdanova, I. V., Gromozova, I. K., and Maksimov, V. N. X-ray diffraction and spectral analysis of materials for cement production (5) 102*c*.

Bogdanovich, M. P. See Vorob'ev, Yu. P.

Bogdev, A. See Gerdzhikov, D.

Bogodukhova, N. A. See Drobasheva, T. I.

Bogomol, I. V. See Samsonov, G. V.

Bogomolov, B. N. See Zlatokrylov, R. M.

Bogomolova, G. A. See Kaminskii, A. A.

Bogoslovskaya, L. N. See Petrin, N. V.

Boguslavskii, I. A., Brekhovskikh, S. M., Abrosimov, V. A., and Viktorova, Yu. N. Glass annealing process, P (3) 61*c*; Annealing of glass, P (7) 160*i*.

Bohanan, Charles S., Jones, David H., Raab, Harry F., Jr., and Radkowsky, Alvin Nuclear reactor for breeding to ^{233}U, P (9) 221*d*.

Bohannon, Kathryn T. See Copeland, James L.

Bohg, A., and Briska, M. Preparation of glass microcapillary waveguides with inside diameters below 1 μm (9) 202*c*.

Bohn, R. G. Low-temp. specific heat of $Li_2O.Al_2O_3.nSiO_2$ glasses and keatite-phase glass-ceramics (9) 201*h*.

Bohra, J. N. Pore structure and properties of C fibers (9) 210*h*.

Boieru, Octavian See Dumbrava, Partenie

Boiko, G. N., Fokin, V. N., Malov, Yu. I., and Semenenko, K. N. NMR study of complex derivatives of Al borohydride with O-containing ligands (1) 42*f*.

Boikova, A. I. See Kazak, V. F.

Boilot, J. P. See Kahn, A.

Boilot, J. P., and Thery, J. Influence of addition of foreign ions on electrical conductivity of β and β″ Al_2O_3 (9) 233*e*.

Boissonade, J., Gandais, M., and Theye, M. L. Influence of the dihedral angle distribution on the atomic radial distribution function in amorphous Ge and Si (1) 40*f*.

Boix, A., Draignaud, M., and Debras-Guedon, J. Analysis of ZrO_2 and Al_2O_3 products and their raw materials by X-ray fluorescence spectrometry (1) 31*i*.

Boksay, Z., and Bouquet, G. Reaction of H_2O molecules with the silicate network in the glass phase (5) 109*e*.

Boldin, V. S. See Leznev, Yu. P.

Boldina, E. F., and Selishcheva, Yu. F. Use of rapid analyses as a means for increasing the output per man-hour of analytical chemists (9) 223*j*.

Boldyreva, T. I. See Leshchenko, N. P.

Bolen, Charles E., Foley, Kevin M., and McCombs, Frank P. Glass fibers coated with a silanized butadiene polymer, P (9) 205*c*.

Bolen, Gerhard N. See Haggerty, William H.

Bolinger, Phillip N., and Rauch, H. W., Sr. Coatings for mullite insulation (9) 208*j*.

Bolkhovityanov, Yu. B., and Bolkhovityanova, R. I. Incorporation of Sn and Te in GaAs and $In_xGa_{1-x}As$ films grown from solution (1) 26*i*.

Bolkhovityanova, R. I. See Bolkhovityanov, Yu. B.

Boll, R. H., and Tozier, J. E. Novel in-stack SO_2 analyzer using hollow cathode lamps (1) 32*h*.

Boller, Thomas E., and Guerra, Salvatore Glass cutting fluid, P (3) 61*d*.

Bolleter, W. See Nyffenegger, H.

Bollinger, Dwight A., and Cathers, William P. Removing broken-off chips from a sheet stacking station, P (1) 15*d*.

Bollinger, Dwight A., Cathers, William P., and Koontz, Harry S. Apparatus for stacking sheet material, P (1) 13*f*.

Bollmohr, Hermann, Jansen, Norbert, Solmecke, Rolf, and Siegers, Ulrich Laboratory and field tests of arc furnace covers lined with dolomitic refractories (9) 210*j*.

Bol'shakov, A. G. See Gural'nik, P. B.

Bol'shakov, A. G., Stoyanov, N. I., Ispravnikov, V. M., and Chaikovskii, G. R. Improved cyclone dust collectors (1) 30*h*.

Bol'shakova, N. K. See Tananaev, I. V.

Boltaks, B. I., Borisova, Z. U., Biktimirova, V. Kh., and Dzhafarov, T. D. Diffusion, electric transport, and effect of a Ag impurity on the electrical and optical properties of As_2Se_3 (9) 229*i*.

Bolton, Anthony P., Best, Donald F., and Shaw, Herbert C. Zeolite-based catalyst composition, P (3) 83*j*.

Boltyanskii, A. V. See Pirogov, Yu. A.

Bombled, J. P. Setting time measurements for cement pastes—rheograph and automatic prisometer CERILH (9) 196*h*.

Bonczar, L. J. See Barach, G. R.

Bond, A. M. See Beyer, M. E.

Bond, Andrew ZrO_2 probes cut flue gas analysis problems (1) 33*i*; Burner experience goes into combustion control (3) 81*i*; Cutting comminution down to size (9) 221*a*; Reliable smoke density monitoring (9) 223*e*; Mains electricity—clean simplicity or expensive trouble (9) 224*c*.

Bondar, A. M., Kutukova, E. S., and Syritskaya, Z. M. Structural transformation in some vitreous borophosphates determined by NMR (5) 110*i*.

Bondar, I. A. See Leonov, A. I.

Bondar, I. A., Mezentseva, L. P., and Domanskii, A. I. Physicochemical study of the apatitelike compound $CaY_4(SiO_4)_3O$ (1) 43*g*.

Bondar, V. M., Vladimirov, V. V., Kononenko, N. I., and Sarbei, O. G. Effect of the multivalley structure of the conduction band on the helical instability in Si electron-hole plasma (1) 37*f*.

Bondar, V. M., Vladimirov, V. V., Kononenko, N. I., and Shchedrin, A. I. Effect of electron warm-up on the corkscrew instability in multivalley semiconductors (3) 73*b*.

Bondar, Yu. D., Khrobostov, L. V., Sokolov, M. I., and Krasovitskii, V. I. Brick for lining spherical bottoms of steel-pouring ladles (9) 208*c*.

Bondarenko, I. E., Erofeev, V. N., and Nikitenko, V. I. Effect of electrically active impurities on the mobility of separate dislocations in Ge (1) 37*j*.

Bondarenko, V. P., Dvorina, L. A., Zmii, V. I., and Fomichev, E. N. Enthalpies and heat capacities of Ti and V disilicides at temps. above 1200°K (1) 38*c*.

Bondarev, D. E. See Kirichok, P. P.

Bondarev, Konstantin T. See Kononko, Vasily P.

Bondarev, Konstantin T., Popov, O. N., and Snezhko, V. D. Selection, laying, and service of refractories in glass-tank furnaces (1) 19*h*.

Bonet, Claude, and Foex, Marc Production of ultrafine refractory particles from refractory material using plasma flows and a fluidized bed, P (3) 77*c*.

Bonetti, G. Reaction of different types of alumina with soda at different temps. (5) 144*f*.

Bonetti, G., and Barbon, F. Thermal expansion and viscosity of lead glasses containing mixed alkalis (5) 110*h*.

Bonham, Jeanne See Smith, Geraldine

Bonham, Roger D. Ceramic art schools—University of Minnesota, Duluth (9) 193*b*.

Bonino, Joseph S. See Allen, Fred E.

Bonner, Edwin J. See Nielsen, Haagen B.

Bonnet, J., and Lassabatere, L. Injection impulse and conduction of Si-SiO_2-Al structures (1) 26*b*.

Bonnet, Juan A. See Rich, C. I.

Bonniaud, R., Pacaud, F., and Sombret, C. Behavior of stored radionuclides in the form of glass or a glass matrix product (1) 5*e*.

Boonstra, A. H., and Mutsaers, C. A. H. A. Adsorption of H peroxide on the surface of TiO_2 (7) 179*d*; Relations between the photoadsorption of O and the number of hydroxyl groups of TiO_2 surface (7) 186*f*.

Booth, Raymond H. See Bahnck, Norman

Bora, M. N., Hatibaruz, J., and Mahanta, P. C. Thermophysical properties of kaolinite doped with alkali metals (1) 27*e*.

Borcea, C., Cirstoiu, F., Isbasescu, A., and Lazar, I. Fission cross section in the reaction ^{239}Pu for the energy range 8-16MeV (5) 128*g*.

Boreskov, Georgy K., Kuklina, Valentina N., Levitskii, Emmanuil A., and Badaev, Boris N. Granulated porous corundum, P (7) 178*i*.

Borevskii, V. M., Litvinova, T. I., and Raichenko, T. F. Reaction of quartz rammed lining with steel component (3) 67*b*.

Boricheva, V. N., Vorontsova, I. V., Senyavin, N. K., and Karas, G. E. Acoustic monitoring of the quality of mullite-corundum plugs SP-11 (5) 115*d*.

Boring, Michael, Wood, J. H., and Moskowitz, J. W. Self-consistent field calculation of the electronic structure of the uranyl ion (UO_2^{2+}) (7) 174*c*.

Borisenkova, A. F. See Chernov, A. P.

Boriskova, T. I. See Perepelitsyn, V. A.

Borisov, I. See Dipchikov, F.

Borisov, V. G. See Abbakumov, V. G. ; Gavrish, D. I. ; Puchkelevich, N. A.

Borisova, A. L., Dzyadykevich, Yu. V., and Sosnovskii, L. A. Reaction of boride coatings with Mo substrates (5) 119*b*.

Borisova, A. Yu. See Vydrik, G. A.

Borisova, I. I., Afonina, N. S., Kiryukhina, N. A., and Loginova, T. V. Industrial methods for applying protective coatings to mirrors (9) 201*b*.

Borisova, V. P. See Nisel'son, L. A.

Borisova, Z. U. See Boltaks, B. I. ; Yashenkova, L. N.

Bornschein, Gerhard See Richter, Liesbeth

Bornstein, A. See Reisfeld, Renata

Bornstein, Norman S. See Brennan, John J.

Borodai, F. Ya., and Suzdal'tsev, E. I. Effect of industrial parameters on the properties of quartz ceramics (9) 209*f*.

Borodin, A. P. See Gryzina, L. N.

Borodulenko, G. P. See Kuz'micheva, G. M.

Borom, Marcus P., Turkalo, Anna M., and Doremus, Robert H. Strength and microstructure in Li disilicate glass-ceramics (1) 11*c*.

Borovkov, K. A. See Berezhnoi, I. N.

Borowski, R. A. See Yeo, K. B.

Borrego, J. M. See Staiger, E. H.

Borrelli, N. F. See Evans, D. L.

Borukhovich, A. S. See Zubov, V. G.

Borutta, Richard See Saifi, Mansoor A.

Borzykh, A. A. See Ivanova, L. P.

Bose, A. K. See Ghose, S. S.

Bosio, Nivaldo J., Hurst, Vernon J., and Smith, Robert L. Nickeliferous nontronite, a 15 A garnierite, at Niquelandia, Goias, Brazil (7) 178*j*.

Boskey, A. L., and Posner, A. S. Formation of hydroxyapatite at low supersaturation (7) 178*g*.

Bosshard, Alfred See Delfosse, Pierre

Bosshard, Ulrich W., Kuepper, Arthur K., and Loehr, Manfred [Calcining] heat treatment of a material in powder form, P (1) 31*c*.

Boszilkov, Vladimir See Kacsalova, Lidia

Botto, I. L., Cohen Arazi, Salomon, and Krenkel, T. G. Evaluation of spodumene minerals by DTA—determination of the temp. of transformation of spodumene I to spodumene II (1) 38*e*.

Botto, Irma L., Baran, Enrique J., Aymonino, Pedro J., and Pedregosa, Jose C. Preparation, crystallographic data, and ir spectrum of Mn(II) diarsenate (9) 237*e*.

Bouchard, Andre C. See Jirmanus, Naila S.

Bouchner, Bohuslav Influence of solid, liquid, and gaseous phases during pressing of ceramic bodies (7) 169*h*.

Boudriot, H., Foelber, B., and Schneider, H. A. Refractive index and double refraction of $ZnSiP_2$ in the visible and near ir spectral range in dependence on wavelength (9) 238*d*.

Bouquet, G. See Boksay, Z.

Bourggraff, Robert See Heitzer, Xaver

Bouse, Vaclav Use of enamel and combined coatings for corrosion protection in the building industry (9) 198*c*.

Bovier, C. See Mosser, A.

Bowbeer, Thomas A. See Thompson, Peter C.

Bowen, D. K., and Hall, C. R. Microscopy of Materials—Modern Imaging Methods Using Electron, X-Ray, and Ion Beams, B (5) 148*a*.

Bowen, H. K. See Kingery, W. D.

Bowen, H. Kent, Adler, David, and Auker, B. H. Electrical and optical properties of FeO (7) 181*e*.

Bowkley, Ian G., and Goff, Nigel J. Electrical capacitors, P (1) 28*h*.

Bowman, C. D. See Schrack, R. A.

Bowman, Edward W., Bowman, Muriel B., and Bowman, Michael E. Glassware handling and treating equipment, P (5) 113*b*.

Bowman, Michael E. See Bowman, Edward W.

Bowman, Muriel B. See Bowman, Edward W.

Box, E. O., Jr., and Farha, Floyd, Jr. Zn aluminate catalyst compositions, P (7) 179*c*.

Boyadzhieva, Kh. See Vulkov, V.

Boyarina, I. L. See Degtyareva, E. V.

Boyce, Walter A. Fast-firing ceramic composition and ceramic article made therefrom, P (7) 170*e*.

Boyd, J. T., and Anderson, D. B. Distributed-feedback coupling in $Ga_{1-x}Al_xAs$ double-heterostructure lasers—effect of Al concentration (3) 56*j*.

Boyer, John A. See Bahnck, Norman

Boyer, Pierre, Pellissier, Henri, and Wacongne, Michel Localizing fuel can failures in nuclear reactors, P (9) 221*c*.

Boysen, Stuart W., III, and Huntley, Frank D. Solution rates of refractory raw material contaminants by molten glass (3) 59*j*.

Bozadzhiev, L., and Batanova, A. Mineral-forming processes during crystallization of glass in the system albite-anorthite-diopside-$CaTiAl_2O_6$ (5) 108*h*.

Bracconi, P., and Dufour, L. C. H reduction of Co-Cr spinel oxides: I, Stoichiometric Co chromite; II, $CoCr_2O_4$-Co_3O_4 solid solutions (7) 182*e*.

Bracegirdle, R. W. H. Natural gas use for glassmelting (5) 132*j*.

Brach, B. Ya. See Bobrysheva, N. P.

Brachet, Daniel, Goursat, Paul, and Billy, Michel New quaternary phase in the Si-Al-O-N system (7) 184*i*.

Brachtel, G., and Hoppe, Rudolf First oxoferrate with isolated FeO_4 groups—Na_5FeO_4 (9) 232*c*.

Bradbury, C., Callaway, P. M., and Double, D. D. Conversion of high Al_2O_3 cement/concrete (9) 194*f*.

Braddon, David V. See Ball, Frank J.

Bradley, Ronnie A., and Sease, John D. High-temp. gas-cooled reactor fuel element, P (9) 221*c*.

Bradshaw, Arthur, and Pearce, N. Dekram—a new multicolor printing equipment (9) 214*j*.

Bradsley, William, Green, Geoffrey W., Holliday, Charles H., and Hurle, Donald T. J. Weighing cell apparatus for diameter control of a rotatable growing crystal, P (5) 128*j*.

Bradt, R. C. See Abdel-Latif, A. Ismail A. ; Abe, Hiroshi ; Dennis, M. D. ; Eckert, L. J. ; Kennard, F. L. ; Kennedy, C. R. ; Siebeneck, H. J. ; Smyth, Jay R. ; Uchno, J. J.

Bradt, R. C., Navarrete-Guijosa, A., and Walker, P. L., Jr. CVD C infiltration of a magnesite refractory (9) 208*f*.

Brady, William C., and Giles, William F. Apparatus for processing glass batch material, P (3) 60*h*.

Braguier, Michel See Bejat, Jean

Brainard, W. A., and Buckley, D. H. Scanning electron microscope used in real-time study of friction and wear (3) 80*g*.

Branch, G. H. Cold end automation in the flat glass industry (9) 199*b*.

Branchi, G., and Mecarelli, E. Glass containers and their chemical inertia in contact with pharmaceutical products (7) 157*h*.

Brandao, Paulo R. G. See DeMenezes, Ivan

Brandle, C. D., and Barns, R. L. Crystal stoichiometry and growth of rare-earth garnets containing Sc (1) 25*c*.

Brandow, B. H. Localized-orbital theory of Mott insulators (7) 183*c*.

Brandt, Klaus, Knoedler, Heinz, and Schmitt-Thomas, Karlheinz Electron microprobe analysis of the surface reduction of vitreous SiO_2 (7) 156*c*.

Brandt, W. W. Solubilities and diffusion coeffs. of inert gases in inorganic glasses. Comparison based on percolation theory (9) 203*f*.

Braniste, C., and Vasiliu, Alina Effect of Al gel on heat resistance of mortars based on portland cement and barite (1) 2*j*.

Brantley, Jordan W. See Horton, Arthur E.

Braun, Manfred See Majdic, Aleksander

Braun, Manfred, and Hennicke, Hans Walter Fluidification and dispersion of various whiteware clays (9) 215*f*.

Braverman, I. B., Rakov, E. G., and Khazhinskii, M. Yu. Oxidation kinetics of Mo in air at 700–760°C (1) 43*a*.

Brawer, Steven A., and White, William B. Raman spectroscopic investigation of the structure of silicate glasses: I, Binary alkali silicates (9) 202*i*.

Bre, M. Strains in glass during forming (5) 110*e*.

Bredekamp, J. H. See Viehmann, W.

Breger, Lance See Williams, Wendell S.

Brekhovskikh, S. M. See Boguslavskii, I. A.

Brekhovskikh, S. M., and Tyul'kin, V. A. Radiation centers of paramagnetic and optical absorption in glasses of the systems $PbO-SiO_2$ and $Na_2O-PbO-SiO_2$ (5) 109*d*.

Bremer, H., Muche, J., and Wilde, M. Oxide catalysts: XVIII. Suitability of different aluminas as carriers for $Al_2O_3/Cr_2O_3/K_2O$ impregnation catalysts; XIX. On the thermal aging of an $Al_2O_3/Cr_2O_3/K_2O$ dehydrocyclizaton catalyst made by impregnation and its regeneration; XX. Influence of the chromia concentration on the thermal aging of $Al_2O_3/Cr_2O_3/K_2O$ dehydrocyclization catalysts made by impregnation (9) 236*b*.

Bremstahler, Manfred Ceramic disk trimmer capacitor, P (1) 28*c*.

Brengartner, Dennis A., and Drummond, Charles H. Standards and calibration procedures for X-ray fluorescence analysis of soda-lime glasses (3) 59*b*.

Brennan, John J., and Bornstein, Norman S. Graphite fiber-reinforced metal matrix composite, P (9) 213*d*.

Brenner, I. B., Eldad, H., Argov, L., and Harel, A. Direct current (central plasma region) spectrochemical analysis of standard silicate rocks and minerals (3) 80*c*.

Bressieux, M. See Illig, J. L.

Brettell, J. M. See Majid, C. A.

Breusov, O. N. See Anan'in, A. V.

Breusov, O. N., and Tatsii, V. F. Oxidation of ZrC after the impact of shock waves (1) 43*c*; Nature of the $\beta \rightarrow q$ transition of quartz (9) 235*a*.

Breval, Else C_3A hydration (7) 150*a*.

Brezina, B. See Franke, V.

Brezny, Bohus See Baker, B. H.

Brezny, Bohus, and Shultz, R. L. Effect of atm on the high-temp. strength of magnesiochromite refractories (3) 64*h*.

Brichta, Corrado See Trevisan, Gianfranco

Briggs, J. Thermodynamics of the glass transition temp. in the system $CaO-MgO-Al_2O_3-SiO_2$ (1) 12*f*.

Briggs, J., and White, D. Appraisal of the factors affecting the resistance of vitreous enamel to mechanical damage (5) 102*i*; Mechanical damage resistance factors of enamels (7) 154*a*.

Brinda, R. J. See Ready, J. F.

Brin'ko, P. I. See Kocho, V. S.

Brion, Dominique J. See Escard, Jacqueline H.

Briska, M. See Bohe, A.

Brissette, Leo A., Grossi, Eugene A., Titlar, James A., and Cherven, Kenneth Hot-pressed ferrites—magnetic-mechanical-microstructural interactions (3) 73*e*.

Broadie, Robert W., Kemlage, Bernard M., and Pogge, Hans B. Two-stage heteroepitaxial process for GaP/Si, P (9) 220*e*.

Brochu, Robert See Salmon, Roger

Brocklehurst, J. E. See Gilchrist, K. E.

Brocks, Gunnar See Kroeyer, Karl K. K.

Brockway, M. Clifford, Hunter, Richard I., and Sharpe, Robert E. Glass container coated with plastic containment film, P (1) 14*i*.

Brockway, M. Clifford, and Sharpe, Robert E. Containment coating composition, P (7) 161*g*.

Broderick, W. M. Mold or press closure protective device, P (9) 222*a*.

Brodmann, Franz J. Perlite microspheres, P (9) 213*g*.

Brodova, S. V. See Vasil'kov, S. G.

Brodovoi, V. A. See Peka, G. P.

Brody, Philip S. High voltage photovoltaic effect in $BaTiO_3$ and $PbTiO_3$-Pb zirconate ceramics (7) 171*c*.

Broeker, F. W., and Simatupang, M. H. Effect of polyethylene glycol on some physical properties of hardened portland cement paste (7) 151*h*.

Broekhoff, J. C. P. Pore-size measurements—fundamentals, possibilities, and limitations (1) 32*j*.

Broemer, Heinz, Kaes, Hans Herbert, and Pfeil, Emanuel Biocompatible glass-ceramic, P (3) 60*b*.

Broemer, Heinz, and Meinert, Norbert Optical borate glass of high chemical resistance, P (5) 113*d*; Fluorophosphate glass, P (9) 204*g*.

Broemer, Heinz, Meinert, Norbert, and Spincic, Johann TiO_2-containing glasses having a high index of refraction and a high dispersion, P (9) 206*h*.

Broetz, Guenther See Heide, Helmut

Broisov, Iv., and Chilova, M. Solubility of basalt glasses melted at different temps. (9) 203*f*.

Bromberg, Robert See Toy, Albert

Bron, V. A. See Bugaev, N. F. ; Diesperova, M. I.

Bron, V. A., Kosolapov, E. F., Serenko, N. F., and Perepelitsyn, V. A. Experimental use of refractories made from a periclase-spinel clinker in steel converters (1) 17*e*.

Bron, V. A., Kukuruzov, A. P., Ishigilov, G. P., and Makova, L. A. Products mfg. from magnesite-graphite granular bodies (1) 19*a*.

Bron, V. A., Stepanova, I. A., Tarasenko, L. Yu., and Perepelitsyn, V. A. Production technology and properties of articles from molten periclase (9) 211*f*.

Bronnikov, A. D., Vol'skii, E. P., Petrashov, V. T., and Razgonov, I. I. Effect of Pb impurities on the temp. dependence of In electrical resistance (5) 138*b*.

Brooke, Peter H., Dickinson, Ian J., Kavanagh, David C., and Smith, Colin Annealing of patterned glass, P (3) 60*g*.

Brookes, Derek J. See Romanski, Andrzej A. F.

Brooks, Thomas Foundry facing sand composition, P (9) 213*c*.

Bros, Jean-Pierre See Gambino, Michele

Brotherton, S. D. See Yeow, Y. T.

Brotzmann, Karl See Knueppel, Helmut

Broussaud, D., Accary, A., Pastor, H., and Meyer, R. Preparation and properties of TiB_2-NiAl cermets (3) 66*j*.

Brovkin, A. A., Novoselov, Yu. M., and Kitsul, V. I. Distribution of Al in crystalline structure of high-alumina hypersthene (3) 86*c*.

Brown, Arthur W. See Murray, Ransome J.

Brown, Clifford G. Cold-pressed refractory materials, P (3) 69*h*.

Brown, Darwyn I. Refractories for the steel industry (5) 119*h*.

Brown, Earle C., and Jones, J. Dennis Spray-forming glass coating on concrete blocks, P (9) 206*f*.

Brown, Gary G. See Waterman, Dwight

Brown, Gordon E. See Rajamani, V.

Brown, H. See Ballman, Albert A.

Brown, J. L. See Lee, S. Y.

Brown, Jesse J., Jr. See Baylor, Richard, Jr. ; Stinton, David P.

Brown, K. E. Criteria for tipping during the liquid phase epitaxial growth of InP (1) 25*c*.

Brown, K. R. See Lane, R. ; Luff, D.

Brown, Leanne M. See Mazdiyasni, K. S.

Brown, R. C., and Clark, N. J. Knudsen cell vaporization of rare earth nitrides—enthalpy of vaporization of $HoN_{0.98}$ (5) 141*h*.

Brown, Randolph E., Jr. See Berg, Joseph E.

Brown, Richard E. See Pardee, Robert P.

Brown, T. See Beretka, J.

Brown, Wendel G., and Olson, David L. Effect of initial C content on the strength of reaction bonded silicon carbide (5) 116*j*.

Brown, William See Shonebarger, Francis J.

Brown, William E., Levine, Charles A., and Tsang, Floris Y. Grinding solder glasses, P (3) 61*i*.

Brown, William W. See Frumerman, Robert

Browning, J. S., McVay, T. L., and Johnson, A. B. Continuous flotation of high-clay potash ores (5) 133*g*.

Brownlow, James M., Buchanan, Relva C., and Tummala, Rao R. Dielectric glasses, P (5) 112*e*.

Bru, L. See Pareja, R.

Bruce, Jack W. See Singleton, Frank H.

Brudnyi, V. N., Budnitskii, D. L., Krivov, M. A., and Redko, V. P. Ir attenuation in α-particle irradiated GaAs (1) 40*b*.

Brueckner, W. Semiconductor-metal transition in $V_{0.996}Al_{0.004}O_{2+x}$ (9) 238*g*.

Brueckner, W., Moldenhauer, W., Wich, H., and Wolf, E. Range of homogeneity of VO_2 and the influence of the composition on the physical properties: II, Change of the physical properties in the range of homogeneity (5) 144*a*.

Brueggemann, Walter H., and Gilhart, Jack S. Catalytic crystalline glass fibers, P (1) 13*h*.

Bruen, Charles P. See Wamser, Christian A.

Bruen, Charles P., and Kelly, Donald H. Producing alumina monohydrate from basic Al nitrates, P (5) 135*a*.

Bruevich, V. N. See Kiselev, B. A.

Brugger, Wilhelm Carbonated hydrated ZrO, P (9) 226*g*.

Brun, M. K., Neurgaonkar, R. R., and Stubican, V. S. Precipitation studies in the system WC-TiC (1) 44*b*.

Brunauer, Stephen See Mikhail, R. Sh.

Brungs, Michael, and Grigg, A. Flaking of commercial glass containers (7) 157*a*.

Brunkin, K., and Delchev, D. Geology of ultrabasic rocks near Fetikler, Kurdzhali district, Bulgaria (3) 82*c*.

Brunn, H., and Hoppe, Rudolf Ternary oxides of the rare earths—$RbLaO_2$, $RbNdO_2$, $RbSmO_2$, $RbEuO_2$, $RbGdO_2$, and $CsNdO_2$ (7) 160*e*.

Brunner, Hans R. See Curtis, Bernard J.

Brunner, Helmut See Schuette, Dieter

Brunner, Rolf H., Carbone, Quideo J., and Lester, William C. Vacuum coating apparatus, P (3) 77*b*.

Bruno, Emiliano, and Facchinelli, Aurelio Anorthite crystallization along the join $CaAl_2Si_2O_8$-SiO_2 (5) 135*i*.

Brunstein, M. See Bar-Chaim, N.

Bruque, J. M., Gonzalez-Caballero, F., and Pardo, G. Determination of zeta potential of Pyrex glass (7) 156*c*.

Brusewitz, A. M. B. Vermiculite clays from Junosuando, Pajala County, northern Sweden (7) 178*d*. See Shaikh, Naz Ahmed

Brusset, Henry, and Knidiri, M. Ir absorption spectrophotometry and Raman diffusion in compounds $M_3UO_2F_5$ (M = K,Rb,Cs,NH_4): I, Raman diffusion spectra of the compounds (5) 140*a*.

Bryant, Walter M. See Babcock, Guy L.

Brydges, William T., III See Beall, George H.

Brydges, William T., III, and Smith, Dennis W. Glasses and glass-ceramics containing rutile fibers, P (1) 14*b*; Glass-ceramics containing rutile fibers exhibiting thermoplastic properties, P (7) 161*g*.

Bryukner, F., Vasilev, Ya. T., Dneprovskii, V. S., Koshchug, D. G., and Silena, E. K. Self-induced transparency in a semiconductor (9) 238*f*.

Bub, Raymond Apprenticing (9) 193*i*.

Bube, Richard H. See Huggins, Robert A. ; Lin, Alice L.

Bubelis, J., and Valsiunas, A. Electrodeposition of Metals , B (3) 94*g*.

Bucaro, J. A., and Dardy, H. D. Equilibrium compressibility of glassy SiO_2 between the transformation and melting temp. (7) 156*i*; High-temp. Brillouin scattering in fused quartz (9) 232*i*.

Bucaro, J. A., and Flax, L. Application of acoustic surface waves to the study of surface properties of ion-exchanged glass (7) 179*e*.

Bucchi, R., and Buzzetti, F. Interpretation of modules as a function of potential composition of portland cement clinker (1) 3*c*.

Buchanan, Carl S., Fargo, Harland E., and Riebel, Charles F. Apparatus for producing fibers and environmental control therefor, P (1) 13*c*.

Buchanan, James R. See Gauge, Thomas P.

Buchanan, Relva C. See Brownlow, James M.

Bucherati, Frank See Pepper, Roger T.

Buchmayer, Peter See Thormann, Peter

Buchner, Heinrich Thermal treatment of granular or lumpy material, particularly firing lime, dolomite, magnesite, or the like and furnace therefor, P (7) 153*d*; Thermal treatment of granular or lumpy material, particularly firing lime, dolomite, and magnesite, P (9) 197*e*.

Buchvarov, S. See Bakalov, Z. ; Bakalov, Zl. ; Gencheva, G.

Buchvarov, S., and Velikova, P. Composition of low-melting Ti glazes (5) 122*i*.

Buckl, Hans See Fahn, Rudolf

Buckley, D. H. See Brainard, W. A.

Buckmelter, J. R. See Lipson, H. G.

Bucsky, Gy Accounting for the differences between particle sizing techniques (1) 31*g*.

Budd, Sidney M. ESCA examination of tin oxide coatings on glass surfaces (7) 157*a*.

Budnitskii, D. L. See Brudnyi, V. N.

Budov, V. M. Glass fiber, P (3) 61*d*.

Budov, V. M., and Mikhailova-Bogdanskaya, Z. A. Nature of mass transfer in a large-size glass furnace and its effect on the production processes (9) 202*f*.

Buehler, Martin G. Semiconductor measurement technology—defects in *pn* junctions and MOS capacitors observed using thermally stimulated current and capacitance measurements. Videotape script (9) 218*b*. See Mattis, Richard L.

Buevoz, J. L. See Aldebert, P.

Bufo, A. See Manfredotti, C.

Bugaev, N. F., Simonov, K. V., Bron, V. A., and Alekseev, V. V. Production and service testing of refractories prepared from flotation-enriched magnesite (9) 211*b*.

Bugaev, N. F., Simonov, K. V., Chernyavskaya, V. P., and Frolov, I. A. Refractories for the stopperless casting of steel (1) 19*c*.

Bugaev, N. F., Simonov, K. V., Mezentseva, A. N., and Bocharov, L. D. Powders from flotation-concentrated magnesite and some of their products (5) 134*h*.

Bugai, A. A., Krulikovskii, B. K., Maksimenko, V. M., and Roltsin, A. B. Concentration dependence of the EPR Line shape—Cr^{3+} ion in $ZnWO_4$ (5) 136*h*.

Buhs, Martin See Schatz, Uwe

Buiocchi, C. J. See Abrahams, M. S.

Bujas, Roko, and Ringot, Claude Fuel element for high-temp. nuclear reactors, P (1) 30*g*.

Bujdoso, Erno See Solymar, Karoly

Bukhalova, G. A. See Tokman, I. A.

Bulaevskii, L. N. Magnetic properties of lamellar superconductors with a weak interaction between layers (1) 41*i*.

Bulakh, V. L. See Usatikov, I. F.

Bulakh, V. L., and Kravchenko, V. P. Quartzites from the Kareli deposit (5) 134*i*.

Bulakh, V. L., Usatikov, I. F., Gubko, I. T., and Naginskii, M. Z. Mfg. Dinas products for use in air heaters of blast furnaces (1) 18*f*.

Bulanov, V. Ya., Mullin, A. Kh., Mokshantsev, G. F., and Sinyukhin, A. V. Oxide phase in Fe powders (3) 66*c*.

Bulavin, I. A. Production Technology of Porcelain and Glazed Earthenware, B (7) 192*c*.

Bulavin, I. A., Makarov, I. A., and Kartofel'nikova, L. A. Effect of surface defects on the strength of polished corundum ceramics (3) 64*j*.

Bulavina, Z. N. See Dolmatov, Yu. D.

Buljan, S. T., McKinstry, Herbert A., and Stubican, V. S. Optical and X-ray single crystal studies of the monoclinic⇌tetragonal transition in ZrO_2 (9) 236*f*.

Bullen, G. J. Effect of temp. and matrix on the strength of synthetic diamond (3) 49*b*.

Bullis, W. Murray Semiconductor measurement technology (3) 75*b*; Semiconductor measurement technology (5) 131*j*.

Bullivant, S. A. See Jones, T. E. R.

Bullock, Jonathan S., IV See Lewis, Philip S., Jr.

Buludov, N. T. See Melikhov, I. V.

Bundy, Albert J. Apparatus for shipping flat glass without packing cases, P (7) 161*c*.

Bunea, Lucretia Fabrication of Vycor glass (9) 200*j*.

Bunget, I. See Steflea, M.

Bunina, V. P., Dolgina, G. Z., and Ivanov, E. V. Kinetics of the sintering of MgO obtained from brine (1) 41*h*.

Bunsell, A. R. See Fuwa, M.

Bunshah, R. F. High rate of deposition of carbides by activated reactive evaporation, P (9) 213*e*.

Buntenbach, Marlene Process for the production of porous moldings from limestone, P (9) 213*j*.

Burdese, A. See Abbattista, F.

Burdett, Fred H. See Pytel, Richard N.

Burdick, Vernon L. See Webber, Roy A.

Burdo, R. A., and Wise, W. M. Determination of Si in glasses and minerals by atomic absorption spectrometry (7) 175*j*.

Burfoot, J. C. See Clarke, R.

Burger, K. R., and Nelson, H. A. Rapid heatup technique applied to glass-melting furnaces (3) 59*b*.

Burgess, James F. See Babcock, Guy L.

Burgess, James F., and Neugebauer, Constantine A. Bonding metal to ceramic, P (3) 76*b*.

Burggraaf, A. J. See vandeGraaf, M. A. C. G. ; Wolters, M.

Burggraf, C. See Mosser, A.

Burghelea, Virginia See Dinescu, Radu
Buri, A., Marotta, A., and Saiello, S. Microstructure and properties of CaO-Al_2O_3-SiO_2 glass-ceramics (9) 202*b*.
Burkard, Edward A., and Kossuth, Donald A. Gypsum set accelerator, P (3) 54*d*.
Burkhardt, P. J. See Av-Ron, Moshe
Burkin, Yu. A. See Seleznev, Yu. E.
Burmenko, E. Yu. See Biletskii, S. M.
Burmistrov, V. N. See Fadeeva, V. S.
Burn, Ian Ceramic capacitor with base metal electrodes, P (1) 28*b*. See Eror, Nicholas G.
Burneika, I., and Lasiene, G. Qualitative treatment of the anisotropy of conductivity holes in Ge (1) 44*b*.
Burney, G. A. See Rankin, D. Thomas
Burns, George W. See Powell, Robert L.
Burns, Gerald See Lurio, Allen
Burns, Robert, and Johnson, Alan Edward Treatment of glass fibers, P (9) 206*j*.
Burns, Robert A. Enzymes bound to heat-activated attapulgite clay, P (9) 226*g*.
Burt, Dan L., Taraci, Richard F., and Zavion, John E. Forming a deposited SiO_2 layer on a semiconductor wafer, P (5) 127*i*.
Burt, M. G., and Inkson, J. C. Study of emission from the (1,1,1) faces of GaAs negative electron affinity (NEA) photoemitters (7) 172*e*; Emission from the (1,1,0) face of negative-electron affinity GaAs (9) 231*d*.
Burton, D., and Nicholson, Patrick S. Nepheline syenite substitution for feldspar in whiteware glazes (1) 23*a*.
Burton, P. See Dargan, C. L.
Burton, Richard J. See Lind, Theodore E.
Burykina, A. L. See Samsonov, G. V.
Busby, Terence S. Corrosion tests as a planning tool in furnace design (9) 208*e*.
Busch, Helmut See Schnapp, Juergen Dieter
Buschow, K. H. J. See Elemans, J. B. A. A.
Buseck, Peter R. See Armstrong, John T.
Bush, Edward A. Cristobalite suppression in high-SiO_2 Li_2O-Al_2O_3-SiO_2 devitrified glass frits, P (7) 161*h*.
Bushin, A. N. See Shapiro, Ya. Z.
Bushmarin, D. B. See Amosov, A. V.
Bushuev, N. N., Trunov, V. K., and Gizhinskii, A. R. K and Th double molybdates (9) 237*c*.
Busmundrud, O. Properties of amorphous-crystalline Si junctions (1) 27*b*.
Buster, J. H. J. M. See Konijnendijk, W. L.
But, A. B., and Rekhtman, V. I. Acoustic classifier for the separation of fine-fraction building materials (9) 206*d*.
But, T. S. See Cherkinskii, Yu. S.
Butler, Barry L. See Williams, J. Paul
Butler, G., and Mercer, A. D. Effect of glass dissolution on corrosion measurements (9) 200*d*.
Butler, Gregg G. See Watson, Ronald H.
Butler, J. K. See Zoroofchi, J.
Butler, Miles F., and Corcia, John T. Glass-to-metal seal, P (9) 205*e*.
Butnyakov, A. I. See Popov, M. I.
Butschkowskyi, M. See Tcheichvili, L.
Butt, Yu. M., Imashev, M. K., and Grebneva, V. P. Mineralizing action of phosphorus slag during the calcining of high-alkali raw material (1) 3*e*.
Butt, Yu. M., and Timashev, V. V. Modifications of the crystal structure of clinker (1) 3*f*.
Butt, Yu. M., Timashev, V. V., Turetskii, A. M., and Paramonova, V. A. Change in chemical composition of clinker calcined using high-ash fuel (1) 2*d*.
Butt, Yu. M., and Topil'skii, G. V. Formation of silicate hydrate phases and cement stone based on them (5) 99*g*.
Butter, E. See Neumann, H.
Butterfield, A. W. See Gibbs, W. E. K.
Buttle, Robert L. See Hart, Lewis F.
Butuzov, Vladimir P., Vatolkin, Evgeny, Gordienko, Leonid A., and Fel'dman, Ernst B. Apparatus for growing crystals from hydrothermal solutions (9) 219*a*.
Buurman, Herman, and Romberg, Hendrik Apparatus for shearing and transferring a glass charge, P (9) 204*d*.
Buzzetti, F. See Bucchi, R.
Byckalo, William, and Nicholson, Patrick S. Spalling of silicone-treated masonry (1) 15*h*.
Byckalo, William, Rosenblatt, Gordon, Lam, John, and Nicholson, Patrick S. Slip casting of β-Al_2O_3 for alkali probes in molten metals (5) 126*h*.
Bykhovskii, V. N. See Mirkin, I. K.
Bykov, I. I. Inelastic deformation of rock castings (1) 18*d*.
Byrd, Carlisle O., Jr. Furnace lining apparatus, P (9) 224*i*.
Byrne, Joseph B., and Ledbetter, Harvey D. Composite materials comprising resin matrix and C fibers, P (1) 5*e*.
Byrum, Bernard W., Jr. See Anderson, P. R.
Bystrikov, A. S. See Tumanov, S. G.
Bystrikov, A. S., and Radzikhovskii, L. A. Influence of WC additions on synthesis of cordierite (9) 233*a*.
Bystrova, V. I., Kirillova, G. K., and Mikhailova, G. A. Nonporous coating on a corundum substrate, P (7) 179*g*.
Byszewski, P. See Szlenk, K.
Byzova, I. G. See Baklanov, G. M.

Cabannes, F. See Faucher, M.
Cable, Michael Developments in glass melting. The scientific background (7) 156*c*.
Cable, Michael, Apak, Can, and Chaudhry, Muhammad Aslam Kinetics of volatilization of soda from Na_2SiO_3 melts (7) 158*e*.
Cable, Michael, and Chaudhry, Muhammad Aslam Volatilization from soda-lime-SiO_2 melts at one atm and reduced pressures (7) 160*e*.
Cable, Stephen J., Fuller, Lee R., and Hotbem, John H. Refractory protection shield for continuous flow furnaces, P (3) 70*i*.
Cabrera, J. M. See Sierra, J.
Caceres, Sergio, and Henley, Ernest J. Process failure analysis by block diagrams and fault trees (9) 242*a*.
Cadoff, I. See Av-Ron, Moshe
Caillere, Simonne See Besson, Huguette
Cairns, Thomas Archeological dating by thermoluminescence (9) 193*i*.
Calderwood, F. W. See Bailey, D. M.
Calderwood, J. H. See Whitham, W.
Calil, Sergio F., and deSouza Santos, Persio Properties of clays and kaolins used in white ceramics (9) 216*c*.
Calliarotti, Roberto See Schmidt, Pierre E.
Callaway, P. M. See Bradbury, C.
Calleri, M., and Gazzoni, G. Thermodynamic and structural aspects of the isopolymorphism presented by the members of systems $SrAl_2Si_2O_8$-$SrGa_2Si_2O_8$ and $SrGa_2Si_2O_8$-$BaGa_2Si_2O_8$ (5) 146*c*.
Calvet, R. Dielectric properties of montmorillonites saturated by bivalent cations (5) 137*e*.
Calviello, Joseph A. Ta-GaAs Schottky barrier semiconductor device, P (3) 77*j*.
Camara, A. Sette See Keune, W.
Cameron, Maryellen See Sueno, Shigeho
Camlibel, I. See Pinnow, Douglas A.
Camlibel, I., Dabby, F. W., Pinnow, Douglas A., and VanUitert, L. G. Forming low-loss optical wave-guide fibers, P (5) 112*j*.
Campagna, Edward R. See Arrandale, Roy S.
Campbell, Frank, Jr. Interlocking ceramic tile for covering an insulated water-cooled pipe structure, P (7) 167*d*.
Campbell, Howard See Shutt, Thomas C.
Campbell, Larry E. See Bartholomew, Roger F.
Campi, M. See Clark, A. H.
Campos, Teresa W., deSouza Santos, Helena, and deSouza Santos, Persio Mullite development from fibrous kaolin mineral (9) 235*i*.
Canali, C., Nava, F., Ottaviani, G., and Zanio, K. Effect of ionized centers on the electron drift velocity in CdTe (3) 86*b*.
Canavier, Elena Karina Persian ceramics (9) 193*h*.
Candille, Marcel See Saurel, Jean-Marc
Cannuli, Vincent M. See Ladany, Ivan
Cano, F. H. See Vegas, A.
Cantaloupe, Francis A., Frost, Rodney I., and Holleran, Louis M. Extruding thin-walled honeycombed structures, P (3) 79*f*.
Capel, F., Moure, C., DelOlmo, L., and Jurado Egea, J. R. Double effect pressure furnace for low-temp. heating (5) 132*f*.
Capozzi, Victor F. Multilayer Ceramic Capacitor Materials and Manufacture, B (7) 191*i*.
Cappelli, P. G. Ceramic materials for engineering applications—Si_3N_4 (1) 16*b*.
Capraru, C. See Dinescu, Radu
Carbone, Quideo J. See Brunner, Rolf H.
Card, H. C. See Sullivan, L.
Cardetta, V. L. See Manfredotti, C.
Cardew, Michael Michael Cardew—a view of African pottery (7) 149*d*.
Carey, Robert P. Support for bushing for containing molten mineral material, P (3) 62*h*.
Carini, George F., Hommel, Ernest M., and Twigger, James R. Method of applying vitreous enamel ground coat, P (1) 5*f*.
Carlisle, Malcolm N. Winding fibers, P (1) 15*i*.
Carlson, David E., and Tracy, C. Edwin Metallization of glass using ion injection (7) 158*b*.
Carlton, Richard W. Inexpensive plate holder for the suction-on-ceramic-plate method of mounting clay minerals for semiquantitative analysis (1) 32*e*.
Carmichael, Donald C., Chambers, Douglas L., and Wan, Chong T. Apparatus for continuous production of sputter-coated glass products, P (1) 13*b*; Continous production of sputter-coated glass products, P (5) 111*j*.
Carnevale, A. See Peterson, G. E.
Carniglia, Stephen C. See Rigge, Ronald J.
Caro, Paul E. See Faucher, M.
Carpay, F. M. A., and Stuijts, A. L. Characterization of grain-growth phenomena during sintering of single-phase ceramics (5) 135*i*.
Carpy, Alain See Portier, Richard
Carpy, Alain, and Galy, Jean System NaF-NbO_2F—structural relations between the two homologous series $A_nB_nX_{3n+2}$ (A = Na, Ca; B = Nb; X = O) and $A_2B_nX_{3n+2}$ (A = Na; B = Nb, W; X = O, F) (5) 146*d*.
Carr, Kamil B. Cement-free castables (3) 64*b*.
Carr, R. M. See Churchman, G. J.
Carr, Ronald R., and Nisevich, Stephen D. Altering the appearance of corundum crystals, P (1) 20*i*; Altering the appearance of corundum crystals, P (7) 178*e*.
Carrier, Gerald B. See Flannery, James E.
Carriere, Bernard, Deville, Jean P., and Goldsztaub, Stanislas Study of amorphous and crystalline silicates by Auger electron spectroscopy (3) 81*c*.
Carswell, G. P. Refractory problems experienced with the sliding-gate valve system (7) 166*d*.
Carter, Ralph E. Sintered UO_2 nuclear fuel, P (5) 129*c*.
Cartier, Peter G. See Beasley, Glenn H.
Cartz, L. See Ozkan, H.
Caruba, Raoul See Baussy, Genevieve
Caruba, Raoul, Turco, G., Iacconi, P., and Lapraz, D. Thermoluminescence of synthetic zircons (5) 146*g*.
Cascarini de Torre, L. E., and Fernandez, G. E. Graphite absorption of N_2O (7) 182*i*.
Cassidy, John E. Launching a new refractory binder (3) 66*a*; Cold-setting refractory compositions, P (3) 69*h*. See Birchall, James D.
Casson, Michael J. See Ball, Matthew C.
Castaing, J. See Schmidt-Whitley, R. D.
Castano, Cesare Refractory materials in the ceramic industry and their use (5) 119*j*.
Castellanos Eslava, Luis M. See Peralta, Antonio Loper
Castelliz, K. M. See Gray, Thomas J.
Castello, Eugene A. See Sentementes, Thomas J.
Casterline, Edgar T., and Benjamin, James A. Trends in microwave power transistors (3) 75*g*.
Castleberry, Donald E., and Linz, Arthur Measurement of the refractive indices of $LiYF_4$ (3) 89*d*.
Caswell, B. G., Russell, G. J., and Woods, J. Photoconductive effects in CdS-Cu_2S photovoltaic cells (3) 74*a*.
Cater, E. David See Sommer, Ronald G. ; Steiger, Roger A.
Catharin, P. Quantitative determination of blast-furnace slag in cements (7) 152*c*.
Cathers, William P. Lead edge stop device, P (1) 14*g*. See Bollinger, Dwight A.
Cato, F. A. See Bickerton, G. F. C.
Catrinu, Paul, Voicu, Constantin, and Enescu, Sanda Sizes for glass fibers for reinforcing unsaturated polyester resins (5) 110*c*.
Cavallini, A., Gondi, P., and Schintu, F. Introduction of dislocations of different character depending on the deformation temp. in Ge (1) 40*g*.
Cavanagh, Joseph C., Cromb, Michael D., and Terner, Emanuel M. Glass container with plastic wrapper, P (9) 205*a*.
Cavanagh, M. S. See Ritter, John E., Jr.
Cavell, Ian W. See Matkin, Derek I.
Caveney, Robert J. Hardness of diamond and gem diamond "substitutes" (7) 149*f*.
Cavero-Ghersi, Cesar, and Durif, Andre Phase equilibrium diagram for the $NaPO_3$-$RbPO_3$ system (9) 236*i*.
Cawthorn, R. Grant Melting relaxtions in part of the system CaO-MgO-Al_2O_3-SiO_2-Na_2O-H_2O under 5 kbar pressure (9) 235*d*.
Cayol, Andre, Chalony, Andre, Clottes, Georges, and Praizey, Jean P. Nuclear fuel subassembly, P (5) 129*j*.
Cazeau, Charles J. See Scott, Stuart D.
Ceausescu, V. See Balta, Petru
Cedo, J., and Puig, J. Extension of the Molins cement works at San Vicente dels Horts, Spain, to a capacity of 1.7 million tons/year (9) 194*j*.
Cekirge, H. M., Tyson, W. R., and Krausz, A. S. Static corrosion and static fatigue of glass (7) 159*f*.
Cemic, L., and Neuhaus, A. Miscibility, phase, and structure relations in the system ZnSe-MnSe at 500–1100°C and pressures to 125 kbars (3) 90*a*.
Cerchez, Mihai Worldwide trends in the glass industry (5) 111*j*.
Cerchez, Mihai, Dumitru, Mircea, Negreanu, Tiberiu, and Sangeorzan, Ivona Glass used as a basis in electronics (9) 217*e*.
Cernoch, Svatpluk Thermodynamic analysis of dryers with recirculation heating (7) 177*f*; Thermodynamic evaluation of recuperation of physical waste heat from industrial furnaces (7) 177*g*.
Cerutti, Richard L., and Demarest, Henry M., Jr. Flat glass-producing furnace, P (5) 112*i*.
Cerutti, Richard L., and Gulotta, Joseph A. Positive containment threshold for use in glass mfg. apparatus, P (1) 15*b*.
Cesnys, A. See Aleksiejunas, A.
Cevales, Giacomo, and Angelin, Luciano Synthesis of Mo-C silicides in a rotating plasma reactor (5) 120*h*.
Cevc, P., and Schara, M. Para- and ferroelectric phase EPR study of irradiated KH_2AsO_4 (9) 236*f*.
Cezairliyan, A., and Righini, J. Measurements of heat capacity, electrical resistivity, and hemispherical total emittance of two grades of graphite in the range 1500 to 3000°K by a pulse heating technique (1) 18*g*.
Chaikovskii, G. R. See Bol'shakov, A. G.
Chaklader, A. C. D. See Ramanan, T.
Chakrabarti, S. C. See Chetty, S. M. K.
Chakraverty, B. K. Insulator-metal transitions—recent experimental results (7) 183*c*.
Chakravorty, A. K. See Chattopadhyay, J.
Chakravorty, D. See Rao, C. N. R.
Chakravorty, D., and Murthy, C. S. Memory switching in films of oxide glasses containing Bi (3) 74*d*.
Chakurov, Il. See Marinov, M.
Chalony, Andre See Cayol, Andre
Chalupa, B. See Sedlakova, L.
Chalyi, V. P. See Lisitsyn, S. M.
Chambers, Arnold See Inns, David H.
Chambers, Douglas L. See Carmichael, Donald C.
Chaminade, Jean Pierre See Vlasse, Marcus
Champier, G. See George, A.
Chandan, Harish See DeJonghe, Lutgard C.
Chandra, S. See Shahi, K.
Chandra, Salek See Chetty, S. M. K.
Chandrashekhar, G. V. See Sinha, A. P. B.
Chandrashekhar, G. V., Shin, S. H., Jayaraman, A., and Keem, J. E. Electrical properties of $(Ti_xV_{1-x})_2O_3$ (5) 138*g*.
Chang, B. See Zak, B. D.
Chang, J., and Dove, D. B. Electron diffraction radial distri-

bution function analysis of amorphous As_2Se_3, As_2Se_2Te, As_2SeTe_2, and As_2Te_3 films (1) 25*e*.
Chang, Leroy L., Esaki, Leo, and Ludeke, Rudolf Molecular beam epitaxy of alternating metal-semiconductor films, P (5) 127*g*.
Chang, Luke L. Y. See Hoda, Syed N.
Chang, Luke L. Y., and Kaldon, R. C. Phase relations in the systems MgO-ZnO-SnO_2, NiO-ZnO-SnO_2 and MgO-NiO-SnO_2 (7) 184*i*.
Chang, S. K., and Toguri, J. M. Thermodynamics of AgCl + Ag_2S and AgBr + Ag_2S melts by mass spectrometry (3) 93*e*.
Channin, Donald J. See Duffy, Michael T.
Chao, E. C. T. Application of quantitative interference microscopy to mineralogic and petrologic investigations (7) 175*g*.
Chaplik, A. V., and Entin, M. V. Effect of localized states in a barrier on electron tunneling (5) 137*i*.
Chapman, John H., Smith, Randolph O., and Josey, Verlon E. Method and apparatus for clay beneficiating, P (5) 134*j*.
Chappell, R. A., and Stoddart, C. T. H. Auger electron spectroscopy study of float glass surfaces (1) 5*d*.
Charles, E. A. See Evans, A. G.
Charles, Robert W. Phase equilibria of richterite and ferrorichterite (3) 90*j*.
Charlesworth, Donald Glassmelting tank, P (5) 113*b*.
Charlet, C. See Lambert, Emmanuel
Charlet, Jean-Marie Effect of grinding on induced thermoluminescence of quartz (5) 137*g*.
Charlu, T. V., Newton, R. C., and Kleppa, O. J. Enthalpies of formation at 970°K of compounds in the system MgO-Al_2O_3-SiO_2 from high temp. solution calorimetry (5) 139*c*.
Chase Kenneth P., and Stassen, William N. Water-soluble sizing for glass fibers and glass fibers sized therewith, P (7) 163*e*.
Chaskelis, H. H. See McKinney, Karl R.
Chatelet, J., Claassen, H. H., Gruen, D. M., and Sheft, I. Lattice phonon spectra of Al_2O_3 anodic films (3) 74*b*.
Chatenet, B. See Donnet, J. B.
Chatterjee, Minoti, Ganguli, Dibyendu, De, Asok, and Saha, Prasenjit Synthesis of zeolite A—a molecular sieve (3) 83*e*.
Chatterjee, N. B., and Panti, B. N. Reheat expansion of fireclay refractories (3) 68*d*.
Chatterji, Jiten See Ostroot, G. Warren
Chattopadhyay, J., Banerjee, B., and Chakravorty, A. K. Beneficiation of low grade graphite of Palamau region Bihar, by flotation (9) 225*c*.
Chaudhari, P. See Herd, S. R.
Chaudhary, K. L. See Dubey, G. C.
Chaudhry, Muhammad Aslam See Cable, Michael
Chaudhuri, S. P. Mullite in hard porcelain (3) 71*i*.
Chavan, V. V., Arumugam, M., and Ulbrecht, J. Influence of liquid elasticity on mixing in a vessel agitated by a combined ribbon-screw impeller (3) 78*g*.
Chay, Dong M. Preventing formation of Na-Fe sulfate in the preparation of Na bisulfate, P (3) 83*f*.
Che, M., Fraissard, J., and Vedrine, Jacques C. Application of EPR and NMR to the study of silicates and clays (3) 84*g*.
Chebotarev, N. T. See Prokin, E. S.
Chechernikov, V. I., Nedel'ko, V. I., Prun, A. F., and Sidorenko, F. A. Knight shift of ^{27}Al and the magnetic properties of Fe, Co and Ni monoaluminides (5) 141*g*.
Chedzoy, O. B. Patterned tile for decorative amusement or instructional purposes, P (7) 170*h*.
Cheishvili, O. D. Fluctuation conductivity of superconductors in strong electrical and magnetic fields above the Curie point (1) 39*d*.
Chekhlarov, V. See Lyutskanov, St.
Chekhovskoi, V. Ya. See Kenisarin, M. M.
Chekrygina, Z. V. See Pishch, I. V.
Chelishchev, N. F., Berenshtein, T. A., and Gribanova, N. K. Sorption of metal cations on natural clinoptilolite (9) 239*j*.
Chemin, J. F. See Saboya, B.
Chemodanov, D. I., and Chernyak, M. Sh. Binding properties of the system PbO-CrO_3-H_2O under autoclave treatment conditions (5) 98*c*.
Chen, Cheng Hong, and Presnall, Dean C. System Mg_2SiO_4-SiO_2 at pressures up to 25 kbars (3) 92*f*.
Chen, E. P. See Hasselman, D. P. H.
Chen, Frank See Dunn, Bruce
Chen, H. S., and Miller, C. E. Centrifugal spinning of metallic glass filaments (5) 104*h*.
Chen, N. Y. Hydrophobic properties of zeolites (7) 182*f*.
Chen, Tu Crystal growth of $BaMoO_4$, $Bi_2O_3.3MoO_3$, and $Bi_2O_3.2MoO_3$ from molten salt solution by "pulling seed" method (1) 36*h*.
Chen, Y., and Abraham, M. M. Evidence for suppression of radiation damage in Li-doped MgO (5) 139*i*.
Chenavas, J. See Shannon, R. D.
Cheney, Richard F. See Port, David J.
Cheng, Yiu Chung See Ingrey, Sidney J.
Chepizhnyi, K. I. See Melkonyan, R. G.
Chepur, D. V. See Gurzan, M. I. ; Khiminets, V. V.
Cherednichenko, L. S. See Pashchenko, A. A.
Cherednik, E. M. See Kilin, V. S.
Cherepanov, V. M. See Ozhogin, V. I.
Cherepov, P. V., Simonov, K. V., Shubin, G. A., and Kukushkin, A. P. Guniting the lining of hot port zones of rotary kilns (3) 65*j*.
Cherin, Allen H., and Rich, Philip J. Apparatus for splicing pairs of arrayed or individual fibers utilizing optical fiber aligning grooves, P (3) 60*j*.
Cherkashin, N. V. See Yamshchikov, V. S.
Cherkasov, G. F. See Tikhomirova, M. F.
Cherkinskii, Yu. S., Slipchenko, G. F., But, T. S., and Khmelevskaya, T. A. Hydration of tricalcium aluminate in the presence of unsaturated compounds (5) 100*b*.
Chermant, Jean Louis KI_C test for brittle materials (7) 176*d*.
Chernetskii, T. P. See Larionov, I. N.
Chernevskaya, E. G. See Volynets, F. K.
Chernina, L. L., Bogatyrev, L. S., Komarova, V. N., and Gusev, A. P. Firing of high-ZrO_2 bakor refractories (1) 17*f*.
Chernoch, J. P. See Greskovich, C.
Chernosky, Joseph V., Jr. Aggregate refractive indices and unit cell parameters of synthetic serpentine in the system MgO-Al_2O_3-SiO_2-H_2O (3) 84*d*.
Chernov, A. P., Borisenkova, A. F., and Dembovskii, S. A. Phase diagrams of As_2S_3-$AsBr_3$ and As_2Se_3-$AsBr_3$ (5) 143*j*.
Chernov, A. P., and Dembovskii, S. A. Liquation in oxychalcogenide glasses (5) 107*h*.
Chernov, R. V. See Moshnenko, V. M.
Chernov, R. V., and Ermolenko, I. M. Physicochemical properties of fluorotitanates in the binary systems RbF-Rb_2TiF_6 and CsF-Cs_2TiF_6 (1) 43*g*.
Chernov, R. V., and Moshnenko, V. M. Systems Rb_2SiF_6-RbF and Cs_2SiF_6-CsF (9) 241*e*.
Chernov, V. A. See Aslanova, M. S.
Chernyak, L. P., Nesterenko, I. P., Karpova, K. S., and Gontmakher, V. E. Sintering of clays obtained during the electromagnetic treatment of water (1) 45*c*.
Chernyak, M. Sh. See Chemodanov, D. I.
Chernyakhovskii, V. A., Gol'dinova, R. N., Kuznetsov, N. N., and Teder, L. I. Properties of unfired ladle brick produced from a charge containing an Al Cr phosphate binder (5) 119*e*.
Chernyavskaya, V. P. See Bugaev, N. F.
Chernyavskaya, Z. Ya. See Alekseeva, A. N.
Chernyshov, G. P. See Filatova, V. N.
Cherpillo, V. P. See Mal'tsev, V. T.
Chertorogov, A. V. See Puz, V. V.
Cherubim, Wolfram, and Resch, Werner Operating experience with refractory lining of steel pouring ladles (1) 18*a*.
Cherven, Kenneth See Brissette, Leo A.
Chervonko, E. I. See Vetyukov, M. M.
Chesneau, F., Jerome, D. Y., and Philippot, J. C. Nondestructive analysis by neutron activation of refractory materials and a glass (1) 18*j*.
Chesworth, Ward System SiO_2-AlOOH-Fe_2O_3-H_2O and the kaolinitic stage of the goethite facies (7) 187*j*.
Chetkin, M. V., Shcherbakov, Yu. I., Volenko, A. P., and Shevchuk, L. D. Anisotropy of linear magneto-optical effects in $TmFeO_3$ (9) 226*f*.
Chetty, S. M. K., Chakrabarti, S. C., and Chandra, Salek Panel type prefabricated slab using structural clay units (3) 63*f*.
Chevela, O. B., and Orlova, L. M. Structural characteristics of double-layer plasma-sprayed coatings (1) 4*i*.
Chevotarev, V. L., and Eenmaa, T. E. Dynamic laws for movement of material in a 4- x 150-m rotary kiln (1) 2*i*.
Chi, Donald D. See Goytisolo, Jorge A.
Chianelli,R. See Banks, E.
Chiba, Atsushi Rapid qualitative or quantitative analysis of inorganic microsubstances by a glass ring oven technique: VI, Microdetermination of Cd, Ca, and Cu in atmospheric particulates (3) 80*e*.
Chiba, Jiro See Suzuki, Yoshiro
Chiculita, A. See Ionescu, R. ; Jaklovszky, J.
Chien, C. L., and Hasegawa, R. Easy axis of amorphous ferromagnet $Fe_{40}Ni_{40}P_{14}B_6$ (9) 217*h*.
Chihara, Fumio See Matsuura, Takashi
Chilova, M. See Broisov, Iv.
Chilton, Henry T. J. See Cummings, William
Chin, Ruth Bethel Pike Potters (7) 149*j*.
Chinnock, Edwin L. See Gloge, Detlef C. ; Smith, Peter W.
Chinnock, Edwin L., Gloge, Detlef C., Smith, Peter W., and Bisbee, D. L. Preparation of optical-fiber ends for low-loss tape splices (5) 109*f*.
Chiocchio, Gerardo See Berardi, Maria Cristina
Chiorean, Vintila See Duca, Voicu
Chirkov, A. K. See Pletnev, R. N.
Chiu, K. Y. See Curtis, O. L., Jr.
Chizhikov, D. M., Gulyanitskaya, Z. F., Belyanina, N. V., and Blokhina, L. I. System Cu_2S-Fe (1) 46*f*.
Chkuaseli, V. F. See Mikhlin, E. Ya.
Cho, Alfred Yi Sn-doped group IIIA-VA Ga-containing layers grown by molecular beam epitaxy, P (7) 173*i*. See Ballamy, William Charles ; Lang, David V.
Choi, Jae Shi, and Kim, Keu Hong Electrical conductivity of the Ni oxide-TiO_2 system (7) 181*b*.
Choi, Long See Ahn, Young-Pil
Choi, Sang Heul See Baik, Yong Hyuck ; Lee, Chong Keun ; Seo, Il Young
Choi, Suk Chin See Park, Keum Churl
Choisnet, J., and Deschanvres, A. Vibrational spectra of cyclic silicates and germanates M_3O_9 (M = Si, Ge): I, Attribution of characteristic frequencies to M_3O_9 rings in compounds of the type benitoite, wadeite, and tetragermanate; II, Vibrational spectra of benitoite-type silicogermanates (5) 147*c*.
Chopra, K. L. See Nath, P.
Chopra, K. L., Nath, P., and Rastogi, A. C. Amorphous Ge alloy films: I, Structural properties (1) 35*c*.
Chotin, Francois, and Perot, Jean P. Controlling glass temp. in a forehearth, P (3) 60*f*.
Chou, C. P. Peter, and Turnbull, David Transformation behavior of Pd-Au-Si metallic glasses (1) 12*h*.
Chou, N. J., Lahiri, S. K., Hammer, R., and Komarek, K. L. Auger analysis of thin oxide films on Pb-In alloys (9) 227*a*.
Chowdary, M. See Smith, D. G.
Chowdhury, A. N. See Sengupta, N. R.
Chown, Martin Joining optical fiber bundles, P (5) 113*f*.
Christenn, Hermann See Lindemann, Willi
Christian, J. Vernon Applied energy conservation program saves dollars (5) 132*d*.
Christian, Jerry D., and Gilbreath, William P. Apparatus for study of plasmas at elevated temps. (7) 175*f*.
Christmann, Marvin H. See Olsen, Keith H.
Chronberg, S. Furnace for continuous firing, P (7) 177*j*.
Chu, T. L. Low-cost thin-layer Si solar cells (7) 171*g*; Polycrystalline solar cells on low-cost substrates, P (9) 219*i*.
Chu, T. L., and Kelm, R. W., Jr. Preparation and properties of AlN films (1) 27*a*.
Chu, Ting L., Szedon, John R., and Johnson, Joseph E. Depositing TiO_2 films by chemical vapor desposition, P (3) 76*g*.
Chubachi, N. See Sasaki, Hiromu
Chufarov, G. I. See Vorob'ev, Yu. P.
Chui, Granger K. Laser beam cutting of a ribbon of hot glass, P (5) 113*f*.
Chuiko, P. I. See Drobich, O. P.
Chukalkin, Yu. G., Goshchitskii, B. N., Dubinin, S. F., and Sidorov, S. K. Radiation effects in oxide ferrimagnets (1) 27*d*.
Chukhlantsev, V. G. See Alyamovskaya, K. V.
Chukichev, M. V. See Arsenev, P. A.
Chukreeva, E. I. See Mikhailov, Yu. F.
Chumas, Sophie J. (Editor) Directory of United States Standardization Activities, B (7) 189*j*.
Chung, D. Y., Farley, J. M., and Saunders, G. A. Anisotropy of Poisson's ratio of tetragonal crystals of the 4/m Laue group—application to $CaWO_4$ (5) 135*h*.
Chung, Kuk Sam See Lee, Hee Soo
Chupakhin, M. S. See Kreingol'd, S. U.
Chuprina, L. M. See Ovrutskii, A. M.
Church, Peter K., and Knutson, Oliver J. Ceramic treating process and product produced thereby, P (5) 121*d*.
Churchill, Renate U. See Churchill, Stuart W.
Churchill, Stuart W., and Churchill, Renate U. Comprehensive correlating equation for heat and component transfer by free convection (3) 79*g*.
Churchman, G. J., and Carr, R. M. Definition and nomenclature of halloysites (7) 189*f*.
Churochkin, V. N. See Berezhnoi, I. N.
Churyumov, V. A. See Biletskii, S. M.
Chuvashov, Yu. N. See Naidich, Yu. V.
Chvatal, Theodor L. Systematic experiments on the hydrophobing of gypsum (5) 102*e*; Present technology of refractory phosphate binders (7) 165*h*.
Chyung, Kenneth See Beall, George H.
Ciarrapico, J. O., and Laconich, R. L. Dry-pressing pottery, P (1) 24*c*.
Cichy, Paul See Richmond, Wesley Q.
Cieciak, Barbara, and Tokarski, Zbigniew Properties of stoneware glazes (7) 169*f*.
Cieloszyk, G. S. See Moon, D. W.
Ciliberti, David F., and Lancaster, Brian W. Performance of rotary flow cyclones (9) 221*d*.
Cimino, A. See Valigi, Mario
Ciontea, Nicolae Aspects from the history of porcelain and faience (3) 49*i*.
Ciopec, M. See Marchidan, D. I.
Cirstoiu, F. See Borcea, C.
Cisowski, J., and Bodnar, J. Electron mobility in Cd_3As_2 at 4.2 K (1) 38*a*.
Ciszek, T. F., and Schwuttke, G. H. Growth and characterization of Si ribbons produced by a capillary-action shaping technique (1) 39*e*.
Claassen, H. H. See Chatelet, J.
Clanton, U. S., and Ladle, G. H. Polyvinyl acetate-methyl alcohol solution as a scanning electron microscope particle mounting medium (3) 80*i*.
Clark, A. E., Jr., Pantano, C. G., Jr., and Hench, L. L. Auger spectroscopic analysis of bioglass corrosion films (3) 55*b*.
Clark, A. H., Cohen, Marvin M., Campi, M., and Lanyon, H. P. D. Magnetoresistance in amorphous Ge (1) 42*a*.
Clark, Daniel J. Heat exchanger core, P (3) 69*d*.
Clark, David E., Dilmore, M. F., Ethridge, E. C., and Hench, L. L. Aqueous corrosion of soda-SiO_2 and soda-lime-SiO_2 glass (3) 55*j*.
Clark, David E., Hench, L. L., and Acree, W. A. Electron microprobe analysis of Na_2O-CaO-SiO_2 glass (3) 57*b*.
Clark, David E., Scott, G. J., and Hench, L. L. Comparison of various X-ray techniques for kinetics analysis (5) 131*b*; Quantitative use of Guinier X-ray cameras in solid state reaction kinetics (9) 223*b*.
Clark, G. M., and Pick, A. N. DTA study of the reactions of V_2O_5 with metal(II) oxides (3) 77*g*.
Clark, N. J. See Brown, R. C.
Clark, Norman O. Refractories, P (3) 70*f*; Treatment of suspensions of mineral waste in water, P (7) 175*c*.
Clark, Peter S., and Bloodworth, David J. Ingot molds, P (9) 213*g*.
Clark, Roger Insulating a kiln efficiently and economically (1) 33*e*.
Clark, W. C. See Stroud, R. F.
Clarke, Charles M. See Ram, Michael J.
Clarke, Otis M., Jr. See Tyrrell, M. E.
Clarke, R., and Burfoot, J. C. Domain effects in the ferroelectric "W-bronze," $KSr_2Nb_5O_{15}$ (1) 37*e*.
Clarke, Timothy H. Lattimo—group of Venetian glass enameled on an opaque-white ground (3) 49*j*.
Clark-Monks, Colin Crystallizable glass suitable for fiber

production, P (5) 112*b*.
Clasen, Helmut, and Deneke, Klaus Electrically insulating embedding composition, P (9) 219*g*.
Class, Gottfried Restraint system for core elements of a reactor core, P (1) 30*j*.
Clastres, P. See Saizonou, S. H.
Clauer, A. H., and Wilcox, B. A. High-temp. tensile creep of MgO single crystals (5) 140*f*.
Claussen, Nils Fracture toughness of Al_2O_3 with an unstabilized ZrO_2 dispersed phase (3) 88*i*; Comments on "Precipitation in partially stabilized ZrO_2" (5) 136*b*.
Claussen, Nils, and Jahn, Juergen Directional solidification of unstabilized HfO_2-Ta (5) 137*i*.
Claussen, Nils, and Lahmann, C. P. Powder behavior of some hot-pressed Si_3N_4 ceramics at high temps. (7) 185*d*.
Clay, David T., and Lynn, Scott Reduction and removal of SO_2 and NO_x from simulated flue gas using Fe oxide as catalyst/absorbent (3) 81*g*.
Clegg, J. B., and Millett, E. J. Determination of C, O, and N in semiconductors by spark-source mass spectrography (9) 222*e*.
Cleland, J. See Macleod, A. C.
Clement, Donald R., Heiber, Carl A, and Mason, Larry D. Automatic crystal diameter control for growth of semiconductor crystals, P (9) 219*b*.
Clements, L. W., Jr. See Lamont, W. E.
Cleveland, Joseph J. See Siebeneck, H. J. ; Warner, Leadom A.
Cliff, Williamson Gunnable tarred refractory mix, P (3) 69*d*.
Clifton, Jack K. See Merrin, Seymour
Clifton, R. J. See Abou-Sayed, A. S.
Close, James R., Wood, William P., Hatch, Robert A., and Johnson, James R. Containing a resiliently supported rigid ceramic catalyst support, P (9) 212*j*.
Clottes, Georges See Cayol, Andre
Clough, A. R. J. Firing of clay-glazed cups (7) 169*c*.
Coad, J. P. See Taylor, R. I.
Coatney, Richard L. Plastically deformable MgO, P; Periclase refractories, P (9) 213*g*.
Cobble, J. R., and Hansen, J. P. Evaluation of refractories for mineral wool furnaces (5) 117*c*.
Coble, R. L. See Katz, R. Nathan ; Mistler, R. E. ; Singh, R. N.
Coblenz, W. S. Elastic moduli of B-doped SiC (3) 86*j*.
Cockram, David R. Coating compositions for glass fibers, P (9) 204*g*.
Cocks, F. H., and Stormont, R. W. High-pressure crystal growth of Na beta alumina (1) 40*b*.
Cocks, George G. Chemical microscopy (9) 222*j*.
Coes, Loring, Jr. Sintered abrasive grains, P (3) 49*f*.
Coes, Samuel H. See Alliegro, Richard A.
Cohen Arazi, Salomon See Botto, I. L.
Cohen, G. Leonard See O'Connor, Paul B.
Cohen, Marvin M. See Clark, A. H.
Colby, B. N. See Bakale, D. K.
Coldewey, R. W. See Hsieh, C. K.
Cole, Thomas R., III, Kehr, William D., and Wiitala, James R. Brazing magnetic ceramic to metal, P (9) 219*c*.
Coleman, J. E. Magnetostatic energies of spherical particles containing reverse spike domains (3) 89*b*.
Colin, Y. See LeBloa, A.
Colle, H. Planning and construction of up-to-date production plant for the refractories industry (5) 118*h*.
Collepardi, Mario See Berardi, Maria Cristina
Collings, R. K., Winer, A. A., and Feasby, D. G. Utilization of mineral wastes (1) 48*h*.
Collins, Alan T. See Lightowlers, Edward C.
Collins, R. A., and Williamson, J. P. A. Role of pinholes in electron emission from thin-film sandwich cathodes (1) 27*g*.
Collins, R. E. See VanGordon, Donald V.
Colliver, David J., and Gibbs, Stephen E. Semiconductor device encapsulation packages and arrangements, P (1) 29*g*.
Collomb, A. See Samaras, D.
Colozzi, A. See Kwan, S. H.
Colson, Frank A. Kiln Building with Space-Age Materials, B (3) 95*c*.
Colvin, Floyd E., Mummert, John R., and Gilbert, Franklin G. Electrically conducting filter media for fluids, P (5) 130*b*.
Comes, Heinrich See Obst, Karl-Heinz
Comperatore, John A. Treating glass sheets, P (1) 15*g*.
Condon, James B. See Lewis, Philip S., Jr.
Condrate, R. A., Sr. See Smith, C. F., Jr.
Conetta, H. E. Ceramic fiber development as an energy saver in the iron and steel industry (3) 64*c*.
Congdon, William M. Reflecting heat shields made of microstructured fused SiO_2 (3) 67*e*.
Congiu, A. See Aresti, A.
Conradi, J. Planar Ge photodiodes (5) 125*h*.
Constant, K. See Kieffer, Richard
Constant, K., Kieffer, Richard, and Ettmayer, P. Pseudoternary system "ZrO" ZrN-ZrC; Pseudoternary system "HfO"-HfN-HfC (7) 185*e*.
Constantinescu, I. See Ienciu, M.
Constantinescu, M. See Baltog, I.
Constantinescu, Mihaela, Segal, E., and Vass, M. Thermoelectric power variation during oxygen absorption on ZnO thin films (3) 75*d*.
Convertini, Ursula See Dimigen, Heinz
Conway, Joseph C. Finite-element techniques applied to cracks interacting with selected singularities (1) 39*b*.
Cook, M. G. See McIntyre, N. S.
Cook, Orville L. Apparatus for removing mortar from used brick, P (7) 163*i*.
Cook, Ralph L. See Humenik, J. N. ; Nedeljkovic, Arsenije I.
Cook, Richard S. Metal oxide coated refractory brick, P (7) 167*e*.
Cook, William R., Jr., and Hubby, L. M., Jr. Indices of refraction of P pentaborate (5) 140*i*.
Cooke, C. M. See Mazdiyasni, K. S.
Cooke, William C., and Agett, Albert H. Strengthening sheet glass by ion exchange, P (5) 114*e*.
Cooley, Carl R., and Lerch, Ronald E. Chemical digestion of low level nuclear solid waste material, P (9) 220*j*.
Cooper, A. F., Gittins, J., and Tuttle O. F. System Na_2CO_3-K_2CO_3-$CaCO_3$ at 1 kbar and its significance in carbonatite petrogenesis (5) 146*d*.
Cooper, A. R. Interdiffusion in semiconducting oxide solid solutions (1) 40*f*. See Robin, R.
Cooper, A. R., and Gupta, P. K. Operational definition of the glassy state—correction (3) 58*f*.
Cooper, Charles F. Burners, P (9) 224*h*.
Cooper, George New plant increases capacity of world's largest brick maker (9) 207*g*.
Cooper, K. See Speight, J. D.
Cooper, Leland L., and Beer, Darl L. Ceramic insulator for supporting a ribbon-type heating element, P (5) 124*h*.
Cooper, S. C. See Lester, M.
Coopmans, Jean P. See Verheyen, Willy
Copeland, James L., and Bohannon, Kathryn T. Kinetics of the solid state high temp. pyrolysis of Na_2HPO_4 in KBr matrix (5) 141*g*.
Copley, S. M. See Swaminathan, V.
Coppola, Richard See Sentementes, Thomas J.
Corbett, John D. See Loechner, Ulrich
Corbett, Paul M., and Fedock, Michael P. Flux for continuous casting of steel, P (5) 104*a*.
Corcia, John T. See Butler, Miles F.
Cordfunke, E. H. P., VanEgmond, A. B., and VanVoorst, G. Investigations on Cs uranates: I, Characterization of the phases in the Cs-U-O system (7) 173*i*.
Cormos, Liviu, and Popica, Stana Catalytic activity of certain $nSiO_2$-nAl_2O_3-xH_2O systems in the disintegration reaction of cumene hydroperoxide: IV, Ir study of synthetic aluminosilicate systems (3) 84*f*.
Cornaz, Michel Trends of automation in Europe (9) 203*d*.
Cornillault, J., and Evrard, P. Laser granulometer (7) 176*e*.
Cornish, W. D., Young, Lawrence, and Thewalt, M. L. W. Space charge fields—a fringe technique for observing such fields during hologram writing in $LiNbO_3$ (9) 223*f*.
Corsaro, Robert D. Glass memory behavior—linear volume response in the annealing region (5) 106*i*; Vol relaxation of dry and wet B_2O_3 glass in the glass transformation range following a sudden change in pressure (9) 203*g*.
Corsi, C., and Vitali, G. Structure of $Pb_xSn_{1-x}Te$ films rf sputtered onto thin metallic structures (3) 75*f*.
Corwin, Richard R. See Creel, Theodore R., Jr.
Cosentino, Jose M. Geology and mineralogy of Yavi district, Jujuy Province (3) 82*c*.
Cosgrove, Lee A., and McEvoy, James E. Auto emissions catalyst, P (7) 167*c*.
Cosolito, Frank J. See Arino, Hirofumi
Cosslett, V. E. See Leapman, R. D.
Costa, D. Hot ladle gunning (9) 209*j*.
Costa, Ubaldo Electrical resistor with a polycrystallime ceramic cover, P (3) 76*j*.
Costanzo, D. A. See LaValle, D. E.
Costen, Robert C. Air foil disperses smokestack effluents upward (1) 30*d*.
Cotterill, R. M. J. See Couchman, P. R.
Coubrough, Lawrence E. Heat-exchanger rim and hub with L-shaped cross section, P (7) 167*b*. See Thurnauer, Hans
Coucher, R. G. Powder feeding apparatus, P (7) 175*b*.
Couchman, P. R., Reynolds, C. L., Jr., and Cotterill, R. M. J. Temp. dependence of the anomalous specific heat of glasses and amorphous solids (9) 203*b*.
Courrier, B., Gleitzer, C., Baron, J., and Poirson, G. Quartz determination in SiO_2 bricks using X-ray diffractometry—correlation with postexpansion (3) 80*c*.
Courtois, Alain See Parmentier, Michel
Coutures, J. P. See Mizuno, Masao
Coutures, J. P., Verges, Rene, and Foex, Marc Solidification temp. of rare earth oxides—effect of atm (1) 45*e*.
Coutures, Jean-Pierre, Rouanet, Alain, Benezech, Gilbert, and Antic, Elisabeth Physical properties of a glass made of Al_2O_3 and Nd_2O_3 (9) 202*a*.
Cowley, Mike See Lambert, Miche
Crabtree, D. F. Luminescence and charge compensation in SnO_2:Tb^{3+} (5) 125*c*.
Cradwick, P. D. Calculation of one-dimensional X-ray scattering from interstratified material (9) 227*e*.
Craievich, A. F. Small angle X-ray scattering study of phase separation in a B_2O_3-$Pb_AI_2O_3$ glass (7) 159*d*.
Cramer, Deane G. Method and apparatus for forming glass on molten metal by using a radiation reflector, P (5) 113*i*.
Crandall, William B. See Harada, Yoshiro
Crane, G. R. See Bergman, J. G.
Craven, R. E. Extrusion of sewer pipe (3) 62*j*.
Crawford, C. W. J. Challenge of Q-BOP (3) 64*d*.
Crawford, J. H., Jr. See Harris, E. F.
Creel, Theodore R., Jr., Jones, Robert A., Corwin, Richard R., and Kramer, Joseph S. Automated electronic system for measuring thermophysical properties (3) 79*f*.
Cremers, A. See Piegneur, P.
Criado, E., DeAza, S., and Estrada, D. A. Dilatometric characteristics of Ca aluminates (9) 229*j*.
Crinkelmeyer, Oliver W., and Morris, Earl F. High-alumina cement, P (3) 54*e*.
Criss, J. W. Particle size and composition effects in X-ray fluorescence analysis of pollution samples (7) 176*i*.
Crivat, Doina Dependence of porosity of aluminosilicate coatings on firing conditions (7) 173*c*.
Crocker, A. J. See Sealy, B. J.
Cromb, Michael D. See Cavanagh, Joseph C.
Cronan, Charles J. See LaBelle, Harold E., Jr.,
Crook, D. N. See Tauber, E.
Croset, Michel See Rigo, Serge
Croughwell, William J. Computer control for glassware forming machine, P (1) 13*j*.
Crowder, Billy L. See Blum, Joseph M.
Crowley, Michael S. Refractory problems in coal gasification reactors (3) 68*a*.
Cruzan, Paul D., and Tisone, Thomas C. Selective removal of material by sputter etching, P (7) 173*f*.
Csaki, Ida See Kudelka,
Csokas, Janos Prospecting clay deposits by surface geophysical methods (3) 83*b*.
Cubaud, J. C. See Saizonou, S. H.
Cubitt, John M. Regression technique for the analysis of shales by X-ray diffractometry (1) 33*c*.
Cuenod, M. See Sommer, H.
Cuenod, M., and Viddinoff, N. Automatic control in dry-process cement plants (5) 98*b*.
Cukor, Peter Analysis of products used in the electronics industry (7) 170*i*.
Cummings, William, and Chilton, Henry T. J. Binder compositions, P (7) 167*d*.
Cummins, Stewart E. Bistable positioner comprising a dimensionally bistable ferroelectric crystal, P (1) 28*b*.
Cuniberti, Mario Cooling pressed glass articles, P (9) 204*a*.
Cunningham, J. A. See Wills, R. R.
Cunningham, James A., Wakefield, Robert H., Jr., and Guidry, Mark R., Jr. Insulated-gate FET circuits, P (3) 76*e*.
Cunningham, William A. See McKetta, John J.
Curtin, W. G., Adams, S., and Sloan, M. Use of post-tensioned brickwork in the SCD system (5) 115*i*.
Curtis, Bernard J., and Brunner, Hans R. Vapor-phase growth of thin films of Li niobate, P (3) 77*b*.
Curtis, Donald, and Hooper, Anthony M. Glass tube bending apparatus, P (3) 61*f*.
Curtis, O. L., Jr., Srour, J. R., and Chiu, K. Y. Hole and electron transport in SiO_2 films (9) 232*j*.
Curtis, Suzi Raw glazed reduced stoneware (3) 71*b*.
Cushion, John P. Connoisseur Illustraded Guide—Pottery and Porcelain, B (3) 93*j*.
Cusimano, V. J. See Aronson, S. S.
Cusumano, J. P. See Kimmel, H. S.
Cutchen, J. Thomas, Harris, James O., Jr., and Laguna, George R. PLZT electrooptic shutters—applications (5) 125*i*.
Cutler, Ivan B. Solid solution of Al_2O_3 in Si_3N_4, P (9) 214*h*. See Goyal, S. K. ; Rao, W. Raja
Cutler, J. F. Engineered masonry computer program (5) 114*f*.
Cutting, R. D., and Stewart, I. McC. Furnace temp. profiles—measurement by spectroscopic methods (5) 131*a*.
Cyrkler, J., and Wyrwicki, R. Loess and loess clays as raw material for ceramic building elements (1) 15*e*.
Czaban, J. D., and Rechnitz, G. A. Fabrication and evaluation of glass microbulb electrodes (5) 106*e*; Glass microelectrode probes for routine pH measurements (9) 200*f*.
Czamarska, Danuta See Tenoutasse, Nemath
Czaran, E., Schnabel, K. H., and Selenina, M. Catalytic properties of Pt zeolites: I, Preparation and structural characterizaton of Pt zeolites (9) 225*e*.
Czarny, Zdzislaw, Medrala, Andrzej, and Medrala, Jan Acceleration of sedimentation process of mineral suspensions in water (7) 149*f*.
Dabby, F. W. Permanent multiple splices of fused-silica fibers (5) 109*b*. See Camlibel, I. ; Pinnow, Douglas A.
Dabrowski, L. See Piekoszewski, J.
Daddario, Emilio Q. Materials and public policy (1) 48*e*.
Daebler, Donald H., and Maimgren, Richard P. Apparatus for repairing hybrid circuits, P (1) 28*a*.
Daerr, Georg Michael See Ludwig, Udo
Dagys, M., Dienys, V., Skucas, J., and Jarmalis, M. Current-voltage characteristics of *n*-type Si in regions of thermal electrons (1) 36*c*.
Dahlberg, E. Philip Instrumentation for surface analysis (1) 32*e*.
Dahm, W., and Thum, W. Experience with pumpable slurry explosive in limestone quarrying (3) 51*d*.
Daimon, Masaki See Goto, Seishi ; Minegishi, Keiichi
Daimon, Nobutoshi, and Izawa, Toichiro Sol of ultrafine particles of synthetic hectorite, P (5) 135*c*.
Dain, E. P. See Takher, E. A.
Dain, F. L. See Dolin, A. I.
Dakin, Gerald F., Jr., Olney, Georges L., and Smyth, Desmond P. R. Apparatus for removing compacted vibrous materials from containers, P (7) 175*f*.
Dalakishvill, A. I. Basalt-based mat glazes (3) 70*i*.
Dalgoutte, D. G., Smith, R. B., Achutaramayya, G., and Harris, J. H. Externally mounted fibers for integrated optics interconnections (3) 57*b*.
Dallas, J. P. See Perez y Jorba, M.
Dalvi, P. Y., and Moorthy, V. K. Influence of calcia addition on sintering behavior of ZrO_2 (3) 65*j*.
d'Ambly, C. G. See Goernert, P.
Damen, J. P. M. See Hansen, P.
Damen, T. C. See Tofield, B. C.

Damiano, John Refractory bonding system. P (3) 70*f*.

Dancy, Edna A. Novel conducting glaze (9) 215*h*.

Dandurand, Jean-Louis See Schott, Jacques

Daniel, Paul New engineering ceramic has a bright future (7) 165*d*.

Daniel, T., and Drzewiecka, A. Prospects in using new materials in wall construction of box-type furnaces (3) 67*g*.

Daniels, T. A. See Freeman, K. B.

Danielsson, U. Apparatus for easy determination of the amount of bound water in cement pastes yielding highly reproducible results (9) 222*f*.

Danihel, William T. Producing patterned glass on a float ribbon. P (7) 162*g*.

Danilov, I. P. See Korobka, L. A.

Danilov, V. I., and Merkin, A. P. One-step production of phosphogypsum articles (5) 100*g*.

Danilovich, V. S. See Smirnova, T. P.

Danisina, I. N. See Vil'k, Yu. N.

Daniszewski, Zbigniew, and Wlodek, Jan Utilization of dust collected from the exhaust gases of rotary kilns (7) 153*f*.

Danley, W. J. See Houlihan, John F.

Dannoehl, W. Mg alloys and fiber materials. P (3) 69*j*.

Danowski, W., and Kieser, J. Chemical reactions in the ZAB preheater under high alkali load (3) 50*a*.

Danyushevskii, S. I., Nikiforov, Yu. V., and Orsher, Zh. M. Quality clinker production by dry method (1) 3*c*.

Danzer, Josef Silcone protection for ceramic products (7) 163*f*.

Dapkus, L., Bertulis, K., and Jasutis, V. V. X-ray diffraction data on the substructure of CdTe films (1) 48*b*.

Dardy, H. D. See Bucaro, J. A.

Dargan, C. L., Burton, P., and Bloomer, C.P. High-threshold thin-film chalcogenide glass memory switches for display application (1) 8*e*.

Dargel, L. See Jasienska, St.

Dargel, L., Wolinski, J. M., and Trela, B. Crystallographic structure of $Li_{0.5}Al_{2.5-t}Cr_tO_4$ (7) 180*i*.

Darienko, N. E. See Vokhmyakov, A. N.

Das, Johannes C. Methods and apparatus for coating part of an earthenware article. P (7) 170*g*; Selectively coating earthenware articles. P (9) 216*d*.

Das Kanungo, J. L. Cation exchange of $[Co(NH_3)_6]^{3+}$ from H-$Co(NH_3)_6$-vermiculite by inorganic and quaternary NH ions (7) 179*d*.

Das, V. Damodara, and Jagadeesh, M. S. Annealing and thickness effects on the electrical resistance of vacuum-deposited Sn antimonide alloy films (3) 72*i*.

Dasgupta, A. Spalling failures of high alumina and MgO based refractories (3) 68*c*; Fertilizer and cement from Indian orthoclase (9) 195*a*.

Dasgupta, S. Hall effect and magnetoresistance of alumina single crystals (3) 73*c*. See Sinha, B. C.

Dashchinskii, L. G. See Kostyunin, Yu. M.

Dates, Harold F. See Bartholomew, Roger F.

Datta, Ranajit K. Thoria-yttria emission mixture for discharge lamps. P (3) 77*a*.

Daugavietis, G. See Sedmale, G.

Dauksch, H. See Ehrburger, P.

Daunov, M. I., Grizik, A. A., Ponomarev, N. M., and Shmidt, E. V. Electroconductivity and thermal emf of LaS and the alloy $LaS_{1.47}$ (5) 138*h*.

Dave, N. G., and Masood, Irshad Thermogravimetric study of kinetic parameters of dehydroxylation of some clay and other minerals (3) 93*f*.

Davey, Norman Electrical insulator materials for use in microcircuit construction. P (7) 172*c*.

David, K. L. See Ganguly, A. K.

David, P. Common and individual problems of various branches of the ceramic industry (3) 78*b*.

Davidge, R. W. Mechanical properties and design data for engineering ceramics (9) 242*a*.

Davidsohn, Uryon S. Diffusion guarded MOSFET. P (1) 28*g*.

Davidsohn, Uryon S., Ajamie, Amil J., and Price, James B. Fabrication of monocrystalline Si on insulating substrates utilizing selective etching and deposition techniques. P (5) 127*g*.

Davidson, Maritza T. See McCarthy, Gregory J.

Davidson, Raymond J. Segregation process for beneficiating Ni, Cu, or Co oxide ore. P (3) 83*h*.

Davidson, S. M., Iqbal, M. Z., and Northrop, D. C. SEM cathode-luminescent studies of plastically deformed GaP (5) 145*d*.

Davidtz, John C. See Preston, Ian

Davies, E. See Holmes, W. H.

Davies, Evan E., and Pout, Christopher R. Reforming process using a U-containing catalyst. P (5) 135*c*.

Davies, H. A. Kinetics of formation of an Au-Ge-Si metallic glass (1) 9*i*.

Davies, John, and Skinner, Dennis E. Rotary coating-applying nozzles. P (1) 31*d*.

Davies, R. C. See Gehrke, R. J.

Davies, S. R. See Keskin, O.

Davila, Cruz See Schmidt, Pierre E.

Davis, C. D., Baker, B. H. Basic roofs for electric furnaces (9) 208*b*.

Davis, David L. People pots (7) 149*e*.

Davis, E. A. See Hurst, C. H.

Davis, H. T., Valencourt, L. R., and Johnson, C. E. Transport processes in composite media (1) 47*h*.

Davis, J. William Commercial application of nonwoven continuous glass fiber composite materials (9) 197*i*.

Davis, James C. Crackling raku glazes with oil reduction (7) 149*b*.

Davis, Matthew L. Lightweight cement compositions for building and other purposes. P (3) 54*e*.

Davis, N. M. See Lile, Derek L.

Davis, R. E., Manring, W. H., and Bauer, W. C. Carryover studies in glass furnaces (3) 55*h*.

Davranov, M., and Il'yasov, I. I. System Na,Rb,Pb || Br (1) 46*i*.

Davydov, L. M. See Karklit, A. K. ; Kuznetsov, Yu. D.

Davydova, O. V. See Firsov, V. M.

Dawkins, J. C. F. Tools with abrasive working surfaces. P (3) 49*f*.

Dawson, Boyd S. Handling loose glass plates. P (1) 14*d*.

Dawson, Graham R. See Biddell, David C.

Day, Delbert E. See Amrhein, Eva-Maria

Dayen, A. A. See Bakr, M. Y.

Dazai, K. See Ihara, Masayoshi

Dazen, John R., and Denero, John V. Nuclear fuel pellet loading machine. P (7) 174*c*.

De, Amal K., Luckscheiter, Berthold, Lutze, Werner, and Malow, Guenter Development of glass-ceramics for the incorporation of fission products (7) 173*d*.

De, Asok See Chatterjee, Minoti

deAhna, Heinz Dieter, and vonderGonna, Ruediger Pr-containing ceramic pigments. P (1) 24*g*.

Deal, Samuel B., and Bartch, Donald W. Haze-resistant Li silicate glare-reducing coating. P (7) 172*i*.

Dean, John A., and Rains, Theodore C. (Editors) Flame Emission and Atomic Absorption Spectrometry: Vol. 3, Elements and Matrices, B (3) 94*h*.

DeAza, S. See Criado, E.

deBiasi, R. S., and Devezas, T. C. Ferrimagnetic resonance study of the growth rate of superparamagnetic precipitates of magnesioferrite in MgO (3) 87*e*.

DeBolt, M. A. See Moynihan, C. T.

DeBolt, M. A., Easteal, A. J., Macedo, P. B., and Moynihan, C. T. Analysis of structural relaxation in glass using rate heating data (3) 55*i*.

Debras-Guedon, J. Application of atomic absorption and emission spectrometry to the analysis of silicate rocks and semisilica refractories (1) 32*b*. See Boix, A.

Debras-Guedon, J., and Bisson, G. Analysis of rocks and ceramic products by atomic absorption spectrometry—techniques of measurements (7) 175*e*.

deBuzzaccarini, Ferdinando Alveolar brick elements and their contribution to thermal protection of buildings (7) 163*g*.

DeCarlo, V. J. See Hillig, William B.

Declerck, Francois-Dominique See Rodrique, Luc

Dedukh, L. M. See Vlasko-Vlasov, V. K.

Deeg, Emil W., and Graf, Robert E. Laser glasses with high damage threshold. P (9) 205*j*.

Deeg, Emil W., Graf, Robert E., and Landry, Robert J. Semiconducting glasses. P (7) 162*j*.

Deeg, Emil W., Krohn, David A., and Graf, Robert E. Faraday rotation glasses. P (5) 112*g*.

Deeg, Emil W., and Snitzer, Elias Laser glasses having high resistance to internal damage. P (3) 61*c*.

Deenadas, C. See Keer, H. V.

Deev, I. S. See Kiselev, B. A.

DeGeorge, Edward C. See Hellman, Wayne R.

Degner, Vernon R. See McChesney, Robert D.

Degtyar, E. P. See Galkin, A. A.

Degtyareva, E. V. See Kabakova, I. I. ; Kainarskii, I. S. ; Pisareva, N. V.; Safronova, I. P.; Shapiro, Ya. Z.

Degtyareva, E. V., Alapin, B. G., Lysak, S. V., and Krivoruchko, P. P. Structure and sintering of TiO_2 solid solutions in Cr_2O_3 (3) 92*f*.

Degtyareva, E. V., Boyarina, I. L., Portnova, A. I., and Krivoruchko, P. P. Sintering of Cr_2O_3 (5) 120*b*.

Degtyareva, E. V., Boyarina, I. L., and Portnova, L. I. Study of the rheological and technological properties of Cr_2O_3 suspensions and castings made from them (9) 212*b*.

Degtyareva, E. V., Kainarskii, I. S., Boyarina, I. L., and Portnova, A. I. Effect of additives on the sintering of Cr_2O_3 (9) 209*a*.

Degtyareva, E. V., Kainarskii, I. S., Pisareva, N. V., and Khabakova, I. I. Production technology for a solid corundum refractory with high heat resistance (3) 67*f*.

Degtyareva, E. V., Kainarskii, I. S., and Safronova, I. P. Rheological and technological properties of SiC suspensions (1) 19*f*.

Degtyareva, E. V., Pisareva, N. V., Kainarskii, I. S., and Gul'ko, N. V. Sintering and mullitization of mixtures of alumina with quartz and aluminosilicates (5) 145*e*.

Degtyareva, E. V., and Shapiro, Ya. Z. Deformation and sintering of pressure-molded materials from chemical industry wastes and of their mixtures with magnesite (1) 16*h*.

deHaas, G. D., Kreijger, P. C., Niel, E. M. N. G., and Slagter, J. C. Shrinkage of hardening cement paste and mortar (9) 196*h*.

Dehe, G. See Seidel, B.

Dehe, G., and Seidel, B. Moessbauer effect study of Al-substituted magnetite (5) 142*h*.

DeHollander, William R., and Nivas, Yogesh Sintering furnace with H-CO_2 atmosphere. P (5) 129*c*.

Deilmann, W., and Schreiber, G. Problems and experiences with slide gates (3) 67*a*.

Deilmann, W., and Zednicek, Walter Wear of ladle linings based on MgO in ingot teeming practice (9) 212*j*.

deJong, G. Generation of thickness-twist modes in a piezoceramic plate (9) 232*d*.

deJong, J. P. See Elemans, J. B. A. A.

deJonge, L. S. Fuel economy by the partial use of flue gases (5) 132*h*.

DeJonghe, Lutgard C., and Chandan, Harish Improving the sintering behavior of Na β-alumina (5) 125*b*; Producing Na-beta-Al_2O_3 solid electrolytes. P (9) 220*a*.

Deju, Radu See Georgeoni, Paul

DeKetelaere, E. C. Coatings and shaped ceramic bodies. P (1) 21*f*.

Dekker, P. Comparison of simple [enamel] slip tests (1) 4*d*.

deKoeroesy, F. Pre-Ceramics (9) 193*h*.

DeKozak, Ariel See Samouel, Maurice

delaCalle, C. See Suquet, H.

Delafosse, Jacques, and Viaud, Jean L. Nuclear fuel assembly. P (9) 221*d*.

Delamoye, P. See Achour, M.

Delarova, N. I. See Smirnyi, V. V.

deLau, J. G. M. See Stuijts, A. L.

Delchev, D. See Brunkin, K.

Delfino, Michelangelo Method and apparatus for isothermal crystal growth. P (9) 219*e*.

Delfosse, Pierre, and Bosshard, Alfred Mill for grinding minerals. P (1) 31*b*.

Delhopital, G. See Pajean, G.

Delimarskii, Yu. K. See Moshnenko, V. M.

DeLisle, F. A. Microscopic analysis of clinker and cement (9) 195*d*.

Delisle, Jean P., Pochard, Raymond, Porte, Robert, and Prouteau, Lucien Failed fuel detection for nuclear reactor. P (7) 174*h*.

Della Mea, G. See Gottardi, V.

Della Porta, Paolo, Giorgi, Tiziano A., and Rosal, Livio Nuclear fuel elements. P (7) 174*b*.

Delmotte, J. Evolution of firing techniques in ceramics, particularly sanitary ware (3) 81*c*.

DelOlmo, L. See Capel, F.

Delongueville, Bernard See Lambert, Emmanuel

DeLuca, Robert D. Forming conductive layer on oxide-containing surfaces. P (1) 14*e*; Optical wave guides. P (5) 113*f*.

Demard, S. L. See Richard, G. M.

Demarest, H. M. Hercuvit glass-ceramic material (3) 57*a*.

Demarest, Henry M., Jr. Stain-decorated glass-ceramic article. P (7) 163*b*. See Cerutti, Richard L.

Demazeau, Gerard See Moret, Jacques

Dembovskii, S. A. See Chernov, A. P.

DeMenezes, Ivan Raw materials for basic refractories (1) 19*f*; Dense sintered periclase from natural Brazilian magnesite (3) 82*g*.

DeMenezes, Ivan, and Brandao, Paulo R. G. Brazilian chromites-properties and evaluation as raw materiaals for refractories (3) 82*f*.

DeMenezes, Ivan, and Soares, Carlos A. M. Curved crystal monochromator. Detection limits of crystalline phases by X-ray diffraction (3) 85*f*.

Dement'ev, L. N., Zubarev, P. V., Ivanov, L. I., and Nikitina, M. V. Change in the C distribution in nonstoichiometric Zr carbide during creep testing (3) 84*i*.

Dement'ev, Valentin M. See Akhundov, Alizakir A. O.

Demidov, K. B. See Akimov, I. A.

Demikhova, T. V. See Zubakov, S. M.

Demou, S. G. See Thirumalai, K.

Demoulin, Pierre See Plumat, Emile

DeMunn, Clark V., Kerko, David J., and Westwig, Ralph A. Fast-fading index-corrected photochromic glass compositions. P (9) 204*f*.

deMurcia, M. See Fillard, J. P.

Demyanov, V. V., and Salnikov, V. D. Dielectric spectrum of Pb germanate crystals (9) 229*h*.

Deneke, Klaus See Clasen, Helmut

Denero, John V. See Dazen, John R.

Denes, Georges, Pannetier, J., and Lucas, Jacques New fluorides $MSnF_4$ (M = Pb,Ba,Sr) with a PbClF type structure (7) 184*g*.

Denev, N. See Rusev, K.

denHartog, H. W. See Knottnerus, D. I. M.

Denielou, L., Petitet, J., and Tequi, C. High-temp. calorimetric measurements—Ag sulfate and alkali chromates, molybdates, and tungstates (7) 182*b*.

Denisenko, V. I. See Khariton, Ya. G.

Denisov, Yu. N., Galantseva, T. V., Malova, N. S., and Fedorov, P. I. Behavior of Ag, Cu, Sn, and Ni impurities in directed crystallization of InI (5) 135*c*.

Denisova, S. S. See Ivanova, V. M.

Denkin, K. Combined method of determining H_2SiO_3 in silicate materials (3) 79*f*.

Dennert, H., and Dennert, H. V. Expanding clay particles. P (1) 34*a*.

Dennert, H. V. See Dennert, H.

Denni, Raymond See Wurmb, Rolf

Dennis, M. D., and Bradt, R. C. Thickness of 90° ferroelectric domain walls in $(Ba,Pb)TiO_3$ single crystals (9) 241*g*.

Denny, Patrick H., and Robertson, Robert Fat-oxidizing enamel catalytic coating. P (9) 198*f*.

Dent, Kenneth H., and Greenhalgh, Frank G. Apparatus for ultrasonic inspection of pressure vessels. P (1) 30*c*.

Denyakin, Z. A., and Sherstnikov, D. S. Beneficiation of refractory fireclays (3) 82*e*.

DePoorter, Gerald L., and Rofer-DePoorter, Cheryl K. ^{18}O enrichment process in UO_2F_2 utilizing laser light. P (3) 78*i*.

Derdacka, Anna, and Paluch, Edmund, Gawlicki, Marek Cu slag as a cement additive (7) 150*b*.

Deren, Jerzy, Haber, Jerzy, and Pampuch, Roman Chemistry of the Solid State, B (5) 147*d*.

Deren, Jerzy, and Kozinski, Stanislaw Changes in physicochemical properties during decomposition of Ni carbonate (1) 35*h*.
Deren, Jerzy, Labus, Stanislaw, and Rekas, Mieczyslaw Kinetics of Li evaporation from solid solutions of Li_2O in NiO (1) 41*g*.
Deren, Jerzy, Lenczowski, Leszek, and Mania, Ryszard Apparatus for studying effect of electric field on activity of semiconducting oxides (1) 35*b*.
Deren, Jerzy, and Mania, Ryszard Effect of external electric field on kinetics of oxidation of CO on NiO (1) 37*a*; Effect of external electric field on kinetics of oxidation of CO on ZnO (1) 37*b*.
Deren, Jerzy, Rekas, Mieczyslaw, and Rog, Grzegorz Determination of thermodynamic functions of Li_2O-NiO solid solutions by emf measurements (1) 36*g*.
Deren, Jerzy, and Rog, Grzegorz Determination of the thermodynamic functions of NiO-CuO solid solutions (1) 36*g*; Thermodynamic functions of mixing in the system NiO-CuO (7) 188*i*.
Derevyankin, Nikolai E., Evseev, Vladimir I., Zhuchkov, Ivan I., and Samoilov, Oleg B. Control rod for nuclear reactor, P (7) 174*f*.
Dergaputskaya, L. A. See Orlova, I. G.
Dergaputskaya, L. A., and Orlova, I. G. Decreasing the deformation shrinkage of corundum ceramics during firing (9) 208*g*.
Dergunova, V. S. See Gurin, V. N. ; Tarabanov, A. S.
Derie, Rene, Ghodsi, Medhi, and Hovrez, R. New method for the preparation of acicular goethite crystals (5) 100*e*.
Derkach, S. N. See Shcheglov, S. I.
Derner, Paul Effect of gas filling on the acoustic and thermal insulation of double glazing units (1) 7*g*.
Derobert, M. See Herbert, J.
Deroff, Mahlon R. Alumina dispersions, P (5) 134*g*.
Derosier, R. M., and Stone, Julian Low-loss splices in optical fibers (5) 107*i*.
Deryagin, A. V. See Kandaurova, G. S.
Desaedeleer, Georges, Ronneau, Claude, and Apers, Desire Pb determination in airborne particulate matter by proton activation analysis (9) 223*e*.
Desayi, P., and Veerappan, M. Tensile strength of cement mortar and concrete from a new indirect tension test (7) 153*d*.
Deschamps, Andre, and Fay, Georges Fine-grained ferrite bodies, P (9) 219*j*.
Deschanvres, Alfred See Choisnet, J.; Mercey, Bernard; Monfort, Y.
Deshpande, D. A. See Kher, V. G.
deSouza Santos, Helena See Campos, Teresa W. ; Ferreira, Heber Carlos
deSouza Santos, Persio See Calil, Sergio F. ; Campos, Teresa W. ; Ferreira, Heber Carlos
Desrousseaux, G. Electrostatic interaction force which creates, between the grains of a thin metallic layer and between each of these grains and the substrate, the double layer formed at the interface (1) 25*h*.
Desyatnik, V. N. See Gorbunov, L. V.
Desyatnik, V. N., Dubinin, B. V., Mel'nikov, Yu. T., and Raspopin, S. P. Interaction of UCl_3 with alkaline earth metal chlorides (9) 220*c*.
Desyatnik, V. N., Korol'kov, V. A., Kurbatov, N. N., and Raspopin, S. P. System LiCl-$PbCl_2$-UCl_4 (1) 46*h*.
Dethy, J. See Duvigneaud, P. H.
Dettmann, F. Hysteresis of V-insulation-Pb Josephson tunnel junctions (1) 26*h*.
Dettmer, K., Goebel, H., and Kessler, F. R. Different proportions of *a*-Ge and *c*-Ge in dependence on the substrate temp. of evaporated films determined by refractive index analysis (1) 25*e*.
Deussner, Herbert Design of rotary kiln outlets (3) 50*g*.
Devezas, T. C. See deBiasi, R. S.
Devillard, Jacques Fuel elements for nuclear reactors, P (7) 174*i*.
Deville, Jean P. See Carriere, Bernard
Devlikanova, R. U. See Razumovskaya, O. N.
Devyatykh, G. G., Maksimov, G. A., Suchkov, A. I., and Larin, N. V. Layer-by-layer analysis of solids by a time-of-flight mass spectrometer with a laser ion source (1) 41*j*.
deWet, W. J. See VanderWesthuizen, H. J.
DeWilde, Willy See Schoonheydt, Robert A.
deWitte, G. Function of product testing in quality control, development, and standardization (5) 103*i*.
Dewsberry, R. Arrhenius plots for oxide samples under conditions of constant pressure and the theory of defect equilibrium (3) 84*i*. See Binns, J. V.
deWys, E. Christiaan, and vonKamptz, Henning Analyses of the phase boundary junctions in the systems anorthite-diopside-enstatite and anorthite-diopside-forsterite (5) 135*g*.
Dhir, Krishna S. Design and implementation of a computer-oriented engineering design model for the cement industry (9) 194*i*; Kiln capacity estimation (9) 195*a*.
Diamond, Sidney Long-term status of $Ca(OH)_2$ saturation of pore solutions in hardened cements (5) 100*b*; Review of alkali-SiO_2 reaction and expansion mechanisms: I, Alkalis in cements and in concrete pore solutions (9) 196*c*.
Dick, Charles J. Cooling hot particulate material, P (3) 79*d*.
Dickey, Clarence A., and Smoot, Thomas W. MgO spheroids, P (7) 167*e*.
Dickey, Clyde W. See Shull, H. Eugene
Dickinson, George A. Method and apparatus for modifying flow in refining zone of a glassmelting tank, P (3) 61*f*.
Dickinson, Ian J. See Brooke, Peter H.
Dickshtein, I. E., Tarasenko, V. V., and Shavrov, V. G. Effect of pressure on magnetoacoustic resonance in uniaxial antiferromagnetic substances (5) 138*c*.
Didyk, B. A. See Fuks, Yu. M.
Diehl, Roland, and Nitsche, Rudolf Vapor and flux growth of γ-In_2S_3, a new modification of In_2S_3 (1) 47*j*.
Dienys, V. See Dagys, M.
Diesperova, M. I. See Perepelitsyn, V. A.
Diesperova, M. I., Bron, V. A., Alekseev, V. V., and Perepelitsyn, V. A. Concentration of magnesites from the Semibratskoe deposit (9) 225*i*.
Diether, Jean See Lange, Ludwig ; Schuette, Dieter
Dietrichs, P., and Kroenert, W. Firing shrinkage, thermal conductivity, and max use temps. of heat-insulating construction materials (7) 165*a*.
Dietz, R. E. Spin-electron interactions and the band structure of NiO (7) 186*j*.
Dietze, Wolfgang Hollow semiconductor bodies, P (1) 28*f*. See Sandmann, Herbert
Dietze, Wolfgang, and Sandmann, Herbert Container for the production of semiconductor bodies, P (3) 76*f*.
Diggle, John W., and Vijh, Ashok K. (Editors) Oxides and Oxide Films, Vol. 3, B (9) 243*a*.
Dikareva, L. M. See Kuznetsov, V. Ya.
Dilger, Horst Investigation of the mechanical and electrical properties of Al_2O_3 with additions of ZnO and NiO at high temps: I, Mechanical properties (5) 140*e*.
Dillon, Thomas F. Second chance for ceramic cutting tools (1) 19*g*.
Dilmore, M. F. See Clark, David E.
DiLorenzo, James V., and Luther, Lars C. Growth technique for high-efficiency GaAs IMPATT diodes, P (1) 28*d*.
Dimanche, Francois, Rassel, Andre, Tarte, Pierre, Thorez, Jaques Kaolins—mineralogy, deposits, uses, (9) 225*f*.
DiMarcello, Frank V. Lead-free glaze for high-density alumina, P (5) 124*a*.
DiMaria, D. J. See Arnett, P. C.
DiMaria, D. J., Aitken, J. M., and Young, D. R. Capture of electrons into Na^+-related trapping sites in the SiO_2 layer of MOS structures at 77°K (9) 227*e*.
Dimigen, Heinz, and Convertini, Ursula Mfg. etched structures in substrates by ion etching, P (1) 28*h*.
Dimitrov, G. See Tinkov, S.
Dimitrov, Z. See Pavlova, I.
Dimitrov, Z., Pavlova, I., Tashkova, A., and Khranova V. Synthesis of blue and bluish-green spinel-type pigments (3) 71*h*.
Dimitrova, Aleksandra *Vas Diatretum* from Thrace (3) 50*c*.
Dimitrova, E. See Pavlova, I.
Din, Ahmad, Hussain, M. Zafar, Sheikh, M. Rashid, and Shahid, K. A. Physical properties of spectacle glass as a function of cation size (3) 58*b*.
Din, Salah Ud, and Nicholson, Patrick S. Creep deformation of reaction-sintered Si_3N_4 (3) 85*g*.
Dines, Martin B. Intercalation of metallocenes in the layered transition-metal dichalcogenides (1) 40*d*.
Dinescu, Radu, Burgbelea, Virginia, and Capraru, C. Thermal equilibria and ceramic properties of cordierite glass-ceramics of the system MgO-ZnO-Al_2O_3-SiO_2 (1) 12*b*.
Dinsdale, A. Energy requirements for ceramics (3) 81*c*.
Dipchikov, F., and Borisov, I. Effect of some additives on the crystallization of glass-ceramics (5) 106*b*.
Dixit, P. N., Lal, P., and Srivastava, S. K. Tunnel-induced impact ionization in the metal-thin insulator-semiconductor-metal system (9) 218*i*.
Dixon, A. J., and Ertl, M. E. Transport effects in liquid Tl chalcogenides (5) 126*c*.
Dixon, Kenneth C. See Anna, Leo A.
Dizengof, G. I. See Titovskaya, V. T.
Dmitriev, P. N. See Prokopovich, V. T.
Dmitriev, P. N., and Makaturin, B. I. Improvement in pneumatic conveyor system for cement (1) 2*j*.
Dmitrieva, L. Yu. See Grebenshchikov, R. G.
Dmitrieva, M. A. See Prokhortseva, V. A.
Dmitrievskii, A. S. See Levitin, R. Z.
Dneprovskii, V. S. See Bryukner, F.
Dobrovol'skii, I. P. See Dolmatov, Yu. D.
Dobrovolskis, Z., Pozela, J., Repsas, K., and Vasilec, O. Current instabilities in homogeneous *n*-type Ge (5) 137*a*.
Dobrzanski, M., and Ziemba, B. Glass containers with antifriction films (3) 57*h*.
Dode, M. See Achour, M.
Dodd, Mike In defense of tradition (3) 49*h*.
Doenitz, Fritz-Dieter See Heidenreich, Erich
Doenitz, Fritz-Dieter, Heidenreich, Erich, Dohndorf, Christel, and Vogel, Werner Controlled crystallization in glass: II, Effect of Fe_2O_3 and NiO on properties and crystallization of an MgO-Al_2O_3-SiO_2 base glass (1) 6*f*.
Doenitz, Fritz-Dieter, Heidenreich, Erich, and Vogel, Werner Controlled crystallization in glass: III, Crystallization of an MgO-Al_2O_3-SiO_2 base glass doped with heavy-metal oxides (1) 6*g*.
Dogandzhieva, R. See Angelov, G. ; Pankratov, V.
Doherty, J. E. See Ammann, C. L. ; Hasselman, D. P. H.
Doherty, Thomas E. See Amberg, Stephen W.
Dohndorf, Christel See Doenitz, Fritz-Dieter
Dolenskii, A. See Kara, I.
Dolezel, V. See Skovajsa, L.
Dolgina, G. Z. See Bunina, V. P.
Dolginov, L. M. See Shevchenko, E. G.
Dolin, A. I., Sivchikova, M. G., Dain, F. L., and Gulai, O. S. Improving the quality of glaze coating on porcelain (3) 71*c*.
Dolivo-Dobrovol'skaya, G. I., and Smirnov, Yu. M. Morphological features of Ge-Si crystals (5) 142*i*.
Dolmatov, Yu. D., Bulavina, Z. N., and Pakholkov, V. S. Structure of particles of a seeded TiO_2 hydrosol (3) 92*e*.
Dolmatov, Yu. D., Tyustin, V. A., Dobrovol'skii, I. P., and Arbuzina, R. F. Initiation of rutile formation during calcination of hydrated TiO_2 (9) 233*c*.
Dol'nikov, A. E., Polyanskii, Yu. V., and Popova, L. I. Increasing the homogeneity of asbestos cement suspension (9) 195*g*.
Doman, Robert C. Dolomite-magnesite refractory and batch therefor, P (1) 21*i*.
Domanskii, A. I. See Bondar, I. A. ; Kazak, V. F.
Dombrowe, H. See Scheibe, W.
Dombrowe, H., and Drescher, G. Effect of grinding aids on the electric resistance of cement (5) 99*g*.
Donaldson, Colin H., Williams, Richard J., and Lofgren, Gary Sample holding technique for study of crystal growth in silicate melts (3) 80*f*.
Donat, E. V., and Pavlov, A. A. Effective small-sized filters (1) 2*g*.
Dondalski, William J. See Arendt, Ronald H.
Donne, Mario Dalle See Meerwald, Ekkehard
Donnet, J. B. See Ehrburger, P.
Donnet, J. B., Battistella, R., and Chatenet, B. Study of the surface of glass fibers (7) 160*b*.
Donohue, Paul C. Preparation and properties of $LnMX_3$, where Ln = rare earths, Bi; M = Ta,Nb,Ti,V; and X = S,Se (7) 185*f*.
Dore, James E. See Yarwood, John C.
Doremus, L. W. See Vezzoli, G. C.
Doremus, R. H. Interdiffusion of H and alkali ions in a glass surface (7) 157*i*; Cracks and energy—criteria for brittle fracture (9) 228*g*. See Borom, Marcus P.; Pavelchek, E. K.; Thomas, M. B.; Tomozawa, M.
Dormann, Jean-Louis See Goldstein, Leon
Dornberger-Schiff, K., and Durovic, S. OD interpretation of kaolinite-type structures: I, Symmetry of kaolinite packets and their stacking possibilities; II, Regular polytypes (MDO polytypes) and their derivation (5) 12*h*.
Dorofeev, V. A. Production and use of basalt-based products in Poland (1) 19*a*.
Dorschky, K. Techniques and criteria of choice for weighing compositions of ceramic bodies (3) 79*a*.
Dorst, Hans G. See Wurmb, Rolf
Dose, Gerhard Gripping apparatus of a lifting device, especially in a core reactor, for setting down and lifting fuel elements and fuel rods, P (7) 174*i*.
Doskocil, Jan See Mangel, Aleksander
Dott, M. See Schatz, Uwe
Double, D. D. See Bradbury, C.
Doukhan, J. C. See Doukhan, N.
Doukhan, N., Doukhan, J. C., and Escaig, B. TEM study of high temp. precipitation in $(Al_2O_3)n$ MgO spinels (7) 188*c*.
Doumeng, M. See Pajean, G.
Doumerc, Jean-Pierre, Pouchard, Michel, and Hagenmuller, Paul Two new compounds—$CrMoO_4$ and $CrWO_4$ (7) 188*e*.
Dovbysh, V. A. See Balkevich, V. L.
Dove, D. B. See Chang, J. ; Molnar, B. J. ; Pantano, C. G., Jr.
Dovgopol, V. I. See Ivanenko, G. P.
Dovgoshei, N. I. See Golobach, I. I.
Dovletov, K., Samakhotina, N. K., Anikin, A. V., and Ashirov, A. Systems BiTe-In(Ga,Sn)Te (5) 146*f*.
Dovzhik, V. G., and Frolova, L. V. Effect of porosity in the air-entraining admixtures on the properties of Keramzit-perlite concrete (7) 151*j*.
Dow, Jeffrey D., and Nicholson, Patrick S. Reply to comment on "Primary recrystallization during the hot-pressing of $MgAl_2O_4$" (3) 85*c*.
Dragieva, I. D. See Ratcheva, T. M.
Dragnea, I. See Teoreanu, I.
Draignaud, M. See Boix, A.
Dremin, A. N. See Anan'in, A. V.
Drepin, N. F. See Val'berg, G. S.
Drescher, G. See Dombrowe, H.
Dreval, I. V. See Savel'ev, V. N.
Drews, Udo W. See Mavrodineanu, Radu
Drigo, A. V. See Gottardi, V.
Drits, V. A., Goncharov, Yu. I., Alexandrova, V. A., and Khadzhi, V. E. New type of ribbon silicates (9) 235*f*.
Drizheruk, M. E. See Gaodu, A. N. ; Kochetova, A. P. ; Pirogov, A. A.
Drizheruk, M. E., Yutina, A. S., Pirogov, A. A., and Lozin, G. A. Changes in aluminosilicate concrete used in lining of water-cooled nozzles of open*h*.
Drobasheva, T. I., Bogodukhova, N. A., and Rabkina, I. G. Ternary system Na_2WO_4-K_2WO_4-WO_3 (5) 146*g*.
Drobich, O. P., Gulyaev, G. I., Chuiko, P. I., and Khamkhot'ko, A. F. Glass lubricant for hot-pressing metals and alloys of low plasticity, P (9) 205*e*.
Drobyshev, V. N. See Anan'in, A. V.
Drofenik, M., Kolar, D., and Golic, L. Crystal growth and crystallographic study of $SrEu_2Fe_2O_7$ (1) 36*i*.
Drolje, Stane Phosphogypsum as a setting regulator during the hydration of portland cement (5) 100*i*.
Drozdov, V. A. See Glikin, S. M.
Drozdz, Mieczyslaw, and Wolek, Wanda Ba aluminate cement its properties and applications (3) 50*i*; Properties and application of Ba-Al_2O_3 cements (7) 152*j*.
Druilhe, Raymond See Goldstein, Leon
Drulis, M. See Bieganski, Z.
Druminski, Manfred Epitaxially deposited semiconductor

layers, P (7) 172*d*.

Drummond, C. H., III, and Turnbull, D. Phase separation in Ge-GeO_2 glasses (1) 10*e*.

Drummond, Charles H. See Brengartner, Dennis A.

Druzhinin, V. G. See Abbakumov, V. G.

Druzhinina, N. A. See Onishchenko, P. V.

Dryden, I. G. C. (Editor) Efficient Use of Energy, B (3) 94*f*.

Drzewiecka, A. See Daniel, T.

Dubble, Roger D. Flame masking of glass articles for metal oxide film deposition, P (5) 112*h*.

Dube, Alfred Pb containing ceramic compositions which further contain a Pb release inhibiting amount of a Cr compound, P (3) 72*e*.

Dubenskii, K. K. See Shevchenko, E. G.

Dubey, G. C., Mall, R. P., and Chaudhary, K. L. Electron diffraction study of low loss dielectric films (3) 73*g*.

Dubey, M. Present state of structural stability and the growth of CdI_2 polytypes (5) 144*h*.

Dubey, Madan Recrystallization of SiC thin films (7) 172*b*.

Dubinin, B. V. See Desyatnik, V. N.

Dubinin, M. M. See Voloshchuk, A. M.

Dubinin, S. F. See Chukalkin, Yu. G.

Dubok, V. A., and Lashneva, V. V. Electrical conductivity of Y_2O_3 (5) 138*f*.

Dubon, A. See Paulus, M.

Dubovik, A. I. See Verdiyan, M. A.

Dubrovin, A. P. See Rabinovich, M. A.

Dubrovina, E. P. See Smirnyi, V. V.

Dubrovina, N. V., Bezrodnyi, V. G., and Pollyak, V. V. Effect of alkaline earths on the crystallization of glass (1) 7*d*.

Dubrovskaya, G. N., Korotkina, M. N., and Roman, O. V. Structure of Ni-ZrO_2 and Ni-Al_2O_3 powder composites (1) 5*a*.

Duca, Milhaela See Duca, Voicu

Duca, Voicu, Duca, Milhaela, and Chiorean, Vintila Microscopic determination of the stress inside faience and china glaze (9) 215*d*.

Ducarre, R. See Baudran, A.

Ducato, Aldo See Bedetti, Gianfranco

Duchane, David V. Water-absorbing starch-acrylonitrile graft copolymers fumed silica or alumina modified to improve rate of absorption for physiological fluids, P (5) 115*b*.

Duchene, J. Direct ir measurements of filament transient temp. during switching in VO_2 film devices (7) 170*e*.

Ducker, W. L., Vallabhan, C. V. G., and McMullin, W. S. Analysis of the design of beam testing apparatus (5) 97*i*.

Duckworth, Winston See Bansal, Girraj K.; Hoagland, R. G.

Ducommun, Georges See Adler, Karl

Dudkevich, V. P., Tsikhotskii, E. S., Zakharchenko, I. N., and Fesenko, E. G. Surface layer of $PbTiO_3$ crystals (9) 218*i*.

Dudkin, L. D. See Voronov, B. K.

Dudnik, E. F. See Gene, V. V.

Dudnik, E. M. See Marek, E. V. ; Severyanina, E. N.

Dudzinski, Stanley J. Method and apparatus for capping cellular glass blocks for load-bearing insulation of liquefied gas storage tanks, P (9) 205*f*.

Duell, J. D. Selection of a dampproof courses for load-bearing brickwork—architectural and constructional considerations (5) 115*f*.

Dufek, G. See Gatterer, J.

Duff, E. J. Fluoride-containing analogs of hydrated Mg silicates (3) 87*j*.

Duffy, J. A., and Grant, R. J. Effect of basicity upon the uv electron transfer spectra of metal ions in borate, silicate, and phosphate glasses (7) 156*g*; Effect of temp. on optical basicity in the Na_2O—boric oxide glass system (7) 156*j*.

Duffy, J. A., and Ingram, M. D. Behavior of basicity indicator ions in relation to the ideal optical basicity of glasses (7) 154*g*.

Duffy, Michael T., Channin, Donald J., and Hammer, Jacob M. Optical wave guide, P (3) 61*j*.

Dufour, L. C. See Bracconi, P.

Dufrane, Kenneth H., Rollins, Jack D., Best, Ralph E., and Barnhart, Victor J. Shipping cask for spent nuclear fuel assemblies, P (9) 221*f*.

Dugdale, Raymond See Habashi, Fathi

Dugger, Cortland O. AlN single-crystal growth from a molten mixture with Ca nitride, P (5) 126*g*. See Lipson, H. G.

Duh, K. Y., and Zemel, J. N. Properties of PbS epitaxial films grown by a hot wall method (3) 74*j*.

Duhart, Pierre See Maurel, Pierre

Dullien, F. A. L. Prediction of "tortuosity factors" from pore structure data (1) 33*b*.

Dullien, F. A. L., and Azzam, M. I. S. Comparison of pore size as determined by mercury porosimetry and by miscible displacement experiments (9) 222*a*.

Dumbaugh, William H., Jr. See Flannery, James E.

Dumbaugh, William H., Jr., and Schultz, Peter C. Strengthened composite glass article, P (9) 206*g*.

Dumbrava, Partenie, and Boieru, Octavian Use of the Felix C-256 computer for cost calculations in the Romanian fine ceramic industry (1) 48*g*.

Dumesnil, Maurice E., and Schreier, Ulrich Pb-Zn-B sealing glass compositions, P (9) 205*j*.

Dumitrescu, H. See Pavelescu, M.

Dumitriu, M. T. Regularities of the properties of II-IV-V_2 ternary semiconducting compounds (5) 144*i*.

Dumitru, Mircea See Cerchez, Mihai

Dunckel, Thomas L. Emergency heat removal system for a nuclear reactor, P (5) 129*e*.

Dunkailo, Peter A. Glass fiberizer with ignition system, P (5) 112*g*.

Dunlap, Robert W. See Massey, Michael J.

Dunn, Bruce, Chen, Frank, and Mackenzie, John D. Preparation of low dielectric constant glasses (1) 10*h*.

Dunn, Stanley A. Heating element, P (3) 69*e*.

Dunn, Wendell E., Jr. TiO_2, P (5) 135*d*.

Dunning, Reginald See Parry, R. J.

Dunsdale, A. Research and development for industry (3) 68*f*.

Duoba, A. See Jakimavicius, J.

Duplenko, Yu. M., and Klimenko, N. K. Gas supply patterns for the Hoffmann ring kiln in brickmaking (9) 224*b*.

Dupuy, Claude See Fonash, Stephen J.

Dupuy, Gerard Device for handling fuel assemblies in a nuclear reactor core, P (3) 78*e*.

Duran, Botia P. Phase relations in the systems HfO_2-La_2O_3 and HfO_2-Nd_2O_3 (9) 236*j*.

Duran, P., and Alvarez-Estrada, D. Industrial production of sintered magnesia from flotation-enriched magnesite (3) 82*d*.

Durif, Andre See Cavero-Ghersi, Cesar

DuRocher, Daniel J. See DuRocher, Gideon A.

DuRocher, Gideon A., and DuRocher, Daniel J. Apparatus for electrically connecting conductors on glass substrates, P (3) 75*j*.

Durovic, S. See Dornberger-Schiff, K.

Durren, Erwin J. Methane recovery from sanitary landfills (9) 224*d*.

Durst, Richard A. Stanardization of pH measurements (5) 132*c*.

Dury, Trevor Heat transfer survey 1975 (5) 132*i*.

Dutchak, Ya. I., Yarmolyuk, V. P., and Fedyshin, Ya. I. X-ray characteristic temp. and coeff. of thermal expansion of Mg_2Si (5) 147*h*.

Dutoit, M. Microwave phonon attenuation in Y Al garnet and Gd Ga garnet (9) 235*f*.

Dutruel, F., and Guyader, R. Effect of steam curing on the color of concrete (5) 99*j*.

Dutt, B. V., Hurrell, J. P., and Kroeger, F. A. High-temp. defect structure of Co-doped α-alumina (1) 26*f*.

Dutt, B. V., and Kroeger, F. A. Thermodynamics of Co precipitation in Co-doped Al_2O_3 (1) 47*d*; High-temp. defect structure of Fe-doped α-alumina (3) 88*h*.

Dutta, A. B. Problems of refractory lining in heat zone of cement refractory kiln (3) 67*b*.

Dutton, R. Correction—Comments on "Crack healing in UO_2" (3) 77*f*. See Wilkins, B. J. S.

Dutz, Hubert See Mosel, B. D.

Duvigneaud, P. H., and Dethy, J. Electrical conductivity of doped transition aluminas (1) 25*c*.

Dvinova, R. A. See Shakhmeister, A. B.

Dvorak, Z. See Timco, G. W.

Dvoretskii, S. A. See Khokhlov, V. I.

Dvorina, L. A. See Bondarenko, V. P.

Dvorkina, S. E. See Minakov, A. G.

D'yachenko See Galkin, A. A.

Dyakonov, M. I., Perel, V. I., Berkovits, V. L., and Safarov, V. I. Optical effects generated by the polarization of nuclei in semiconductors (9) 236*d*.

D'Yakov, S. I. See Nemets, I. I.

Dyakova, V. See Stamenov, St.

Dyakovska, Tsv., Ivanov, Iv., Maksimov, A., and Shekerdzhiiska, M. Moldable refractories for insulation of burners of rotary cement kilns (5) 118*a*.

D'yakovskii, V. S. See Glushkova, V. B.

Dyban, Yu. P. See Gnesin, G. G.

Dyblin, B. S. See Vetyukov, M. M.

Dyott, Richard B. Optical fiber light wave guide, P (5) 113*e*.

Dyskin, E. M. See Raevskii, G. V.

Dyson, John R. See Matkin, Derek I.

Dyukov, A. L. See Zubakov, S. M.

Dzampaev, Kh. S., Ugai, Ya. A., Kavetskii, V. S., and Gordin, V. L. Preparation and study of thin films of InP (3) 74*f*.

Dzhabrail-Zade, E. E. See Avalov, V. R.

Dzhafarov, T. D. See Boltaks, B. I.

Dzhigiris, D. D. See Khariton, Ya. G.

Dzhigiris, D. D., Makhova, M. F., Grebenyuk, N. P., and Zakharuk, V. G. Acoustic-grade gypsum panels (slabs) reinforced and filled with basaltic glass fibers (9) 193*j*.

Dzhikaev, Yu. K. Thermoelectric phenomena in the intermediate state of superconductors (9) 241*f*.

Dzhioev, R. I. See Vekua, V. L.

Dzhvarsheishvili, A. G. See Kasennyi, V. G.

Dzyadykevich, Yu. V. See Borisova, A. L.

Dzyba, L. V. See Metla, I. I.

Dzyuba, E. D. See Pechkovskii, V. V.

Eadie, George P. Oil firing of furnaces and the development of the dual fuel furnace (3) 81*f*.

Eagan, Robert J. Mo sealing glass-ceramic composition, P (9) 205*i*.

Easaw, George Determination of the density and moisture content of soil in place using nuclear equipment (7) 175*i*.

Easteal, A. J. See DeBolt, M. A. ; Moynihan, C. T.

Eastwood, H. Keith See Griffiths, C. H.

Eastwood, H. Keith, and Noval, Barry A. Thin-film devices of doped V oxide material, P (1) 29*j*.

Eaton, David L. Porous glass support material, P (1) 15*b*.

Ebenhoech, Franz L., Werner, Dietmar, Bock, Gustav, and Wunsch, Gerd Transparent yellow Fe oxide pigment, P (3) 72*h*.

Eberhart, Wolfgang R. External internal channels in glass tubing, P (7) 161*j*.

Eberl, Dennis, and Hower, John Kaolinite synthesis—role of the Si/Al and (alkali)/(H^+) ratio in hydrothermal systems (5) 141*a*.

Eberl, E. Kinetics of grinding in a vibrating mill and its mathematical record (7) 174*i*.

Ebersberger, Hans See Friedel, Rudolf

Eckart, D. W. See Menashi, W. P.

Eckelmann, G. Advantages of supplementary firing systems for preheaters and grates of rotary cement kiln plants (5) 97*g*.

Eckert, L. J., and Bradt, R. C. Thermal expansion of corundum structure Ti_2O_3 and V_2O_3 (7) 188*e*.

Eckett, David V., and Ellen, Christopher H. Three-layer coating on a glass container, P (3) 62*j*.

Economy, James, Lin, Ruey Y., and Murty, Hari N. C fibers, P (1) 21*c*.

Economy, James, and Smith, William D. α-MoC superconductor fibers, P (1) 27*i*.

Edahiro, Takao See Miyashita, T.

Edington, J. W., Rowcliffe, D. H., and Henshall, J. L. Mechanical properties of Si_3N_4 and SiC: I, Materials and strength; II, Engineering properties (7) 183*j*.

Edwards, Terence See Thorpe, Ian

Eenmaa, T. E. See Chevotarev, V. L.

EerNisse, E. P. See Norris, C. B.

Efimov, A. A. See Efimova, L. P.

Efimov, G. V. See Karpinos, D. M.

Efimova, L. P., Efimov, A. A., Kushal'nikov, V. T., and Ivanova, N. I. Anorthite as a new type of raw material for the glass industry (1) 5*a*.

Efremov, I. F. See Rozental, O. M.

Eggemann, Robert V. Al for bonding Si-Ge alloys to graphite, P (5) 126*g*.

Egger, Richard L. See Wilson, Earl J.

Eggert, Noel B. Apparatus for tail removal in blow molding machines, P (1) 13*f*.

Eggimann, D. W., and Betzer, P. R. Decomposition and analysis of refractory oceanic suspended materials (9) 221*a*.

Egorov, G. B. See Okorokov, S. D.

Egorova, T. N. See Novikov, V. N.

Eguchi, Kiyohisa See Nakashima, Hiroshi

Ehlers, Robert Bending fo glass sheets, P (1) 13*g*.

Ehlert, W. Interesting raw materials for the ceramic industry from South Africa (5) 134*a*.

Ehman, Michael F. Surface preparation of ceramic oxide crystals—work damage and microhardness (1) 46*h*.

Ehrburger, P., Dauksch, H., Escard, J., and Donnet, J. B. Identification of oxygenation functions in C fibers (3) 65*f*.

Ehrich, Werner Waste heat boilers downstream of glass tank regenerators (7) 160*g*.

Ehrt, Roland See Heidenreich, Erich

Eibisch, R., Haubol, S., and Schnedelbach, G. New dispersing apparatus for revolving table air classifiers (5) 130*c*.

Eich, A. Hollow glass prefabricated wall element, P (3) 61*a*.

Eichinger, G. See Besenhard, J. O.

Eichis, B. A. See Kusnitsyna, T. A.

Eiduks, J. See Sedmale, G.

Eifel, M., and Schoenert, K. Grinding in ball mills with plain and with grooved plates (7) 151*f*.

Eifert, Helmut See Schnapp, Juergen Dieter

Einaga, Hisahiko See Ichinose, Akio

Eingorn, S. B. See Vasil'chenko, V. S.

Eirich, G. See Eirich, W.

Eirich, W., and Eirich, G. Preparation of fusible charge batch for glass, ceramic, or enamel glaze, P (1) 31*d*.

Eisenring, R. See Kuenzle, H. G.

Eisermann, Hubert See Maciag-Sternik, Henryka

Eissa, N. A., Bahgat, A. A., Mohamed, A. H., and Saleh, S. A. Calculation of the activation energy of solid-state reactions using the Moessbauer effect (9) 227*d*.

Eissa, N. A., Shaisha, E. E., and Hussiun, A. L. Study of alkali borate glass containing Sn by the Moessbauer effect (1) 11*j*.

Eitel, Wilhelm Silicate Science: Vol. VI, Silicate Structures and Dispersoid System, B (3) 96*j*; Silicate Science; Vol. VII, Glass Science, B (7) 192*g*.

Ekimov, A. I. See Berkovits, V. L.

Ekstrom, Alfred, and McLaren, Ashley B. UF_6, P (7) 174*f*.

Elarde, Vito D. Ceramic composition of low shrinkage during sintering, P (9) 212*f*.

El-Badry, Kh. M. See Ammar, M. M.

El-Badry, Kh. M., and El-Batal, H. A. Refractive index and density of some borosilicate glasses and the mixed alkali effect (3) 59*e*.

El-Batal, H. A. See El-Badry, Kh. M.

El-Batal, H. A., and Ghoneim, N. A. Spectrophotometric and magnetic studies of some high Pb silicate glasses containing Mn (3) 59*j*.

Elbert, Raymond J. Ceramic-coated porous metal structure, P (7) 154*j*.

ElBouseily, Ahmed M., and ElShamy, Tayseir M. Wet preparation of water glass from the hull ash of Egyptian rice (9) 226*d*.

Eldad, H. See Brenner, I. B.

Elemans, J. B. A. A., Buschow, K. H. J., Zandbergen, H. W., and deJong, J. P. Magnetic order in the pseudobinary system $Th(Fe_{1-x}Ni_x)_5$ (5) 141*c*.

Elesin, V. F. Nonequilibrium state of superconductors with optically excited quasi particles (1) 42*g*.

Elgenstierna, Reinhold Mfg. of brick panels by the cassette method (3) 63*b*; Production of brick panels using special spacer slides (3) 63*h*.

El-Hiti, A. S. Preferred orientation due to the effect of pressure on the layer structure of talc (3) 90*j*.

Elias, D. P. See Lane, R.

Elinzon, M. P. See Arsentsev, V. A.

Elliseev, A. A. See Kuz'micheva, G. M.
Elliseeva, G. G. See Shakhtin, D. M.
Elizarov, A. I. See Baidakov, V. V.
Ellen, Christopher H. See Eckett, David V.
Ellern, M. A. See Vasil'kov, S. G.
Ellert, G. V., Sevast'yanov, V. G., and Slovyanskikh, V. K. System U-S (1) 29*j*; Systems U-Se and U-Te (9) 220*f*.
Ellert, G. V., and Slovyanskikh, V. K. Interactions in the U-S-Te system (9) 220*d*.
Elliot, A. Grant, and Huggins, Robert A. Phases in the system $NaAlO_2$-Al_2O_3 (3) 90*a*.
Elliott, Curtis H., Jr. Faujasitic-type crystalline zeolites, P (7) 178*h*.
Ellis, Harold Electrically conductive compositions, P (3) 76*j*.
Ellis, Howard F. Nonlinear resistance surge arrester disk collar and glass composition thereof, P (9) 205*j*.
Ellis, James L. Surface having sealing glass composition thereon, P (3) 62*h*.
Elmer, Otto C. Bonding glass fibers to rubber, P (1) 13*h*; Adhesion of glass fibers to rubber (9) 204*b*.
Elmer, Thomas H. C-containing glass resistors, P (5) 111*f*; Ultralow-expansion ceramic articles, P (9) 206*a*.
Elmer, Thomas H., and Meissner, Helmuth E. Increase of annealing point of 96% SiO_2 glass on incorporation of C (7) 157*g*.
Elmgren, Staffan, and Svensson, Lennart Equipment for treating materials at high temp. and at high pressure, P (1) 31*f*.
Elofsson, Kjell See vanSanten, Aart
El-Shamy, T. M., and Morsi, S. E. Chemical durability of Na_2O_3-Al_2O_3-SiO_2 glasses in relation to their membrane potentials: Chemical durability of Na_2O-CaO-SiO_2 glasses in acid solutions (7) 155*g*.
ElShamy, Tayseir M. See ElBouseily, Ahmed M.
El-Sharkawy, A. A., Atalla, S. R., Yourchak, R. P., and Filippov, L. P. Apparatus for simultaneous determination of thermal diffusivity, capacity, and conductivity coeffs. of solids in the temp. interval 1200–2200°K (1) 32*a*.
Elssner, G., and Pabst, R. Fracture mechanics study of solid state bonding of metal-ceramic laminates (3) 73*b*.
Elssner, W. See Roeppischer, H.
Elstner, I. Possibilities of manufacturing higher quality heavy clay products (5) 115*b*.
Eltysheva, A. A. See Usatikov, I. F.; Karaulov, A. G.
Elwell, D. See Scheel, Hans J.
Elwell, D., and Scheel, H. J. Crystal Growth from High-Temp. Solutions, B (5) 148*a*.
Embabi, Hassan K., and Abdelghany, F. M. Suitability of some Egyptian clays for the slip casting process (3) 71*f*.
Emlina, M. E. See Kashcheev, I. D.
Emmanuel, A., Moore, A. R., and Pollock, H. M. Nonmetallic surfaces for field-emission and field-ion microscopy (3) 90*b*.
Emmony, D. C., Phillips, N. J., Toyer, J. H., and Willis, L. J. Topography of laser-irradiated Ge (1) 47*f*.
Emoto, Takeo See Era, Akio
Emtage, P. R. Auger recombination and junction resistance in Pb-Sn telluride (9) 227*c*.
Enculescu, Maria Effect of oxides of transition metals on tricalcium silicate formation (1) 2*c*.
Endersen, William C. Rotary kiln, P (5) 133*a*; Support of rotary drums such as kilns, P (7) 153*d*.
Endlich, Karl H. See Weber, Horst
Endo, Eiji See Yamamoto, Nobuo
Endo, Kazuo See Shimada, Hachiro
Enescu, Sanda See Catrinu, Paul
Engelhardt, G., Zeigan, D., Jancke, H., and Hoebbel, D. ^{29}Si-NMR spectroscopy of silicate solutions: II, Dependence of the structure of silicate anions in water solutions on the Na:Si ratio (7) 159*b*.
Engelhardt, Guenther, and Kalb, Sabine Etching method of revealing dislocations in polycrystalline alumina (5) 131*i*
Engell, Hans-Juergen See Valet, Peter-Michael
Engelleitner, W. H., and Floyd, Samuel B., Jr. Pelletizing glass batch materials, P (3) 62*a*.
Englund, A. E. See Korobkina, V. V.
Engstrom, Bengt, Klang, Hans, and Persson, Gosta Foamed ceramics, P (7) 161*c*.
Enke, Christian Gg. New knowledge on surface treatment (5) 103*j*.
Enoch, R. D., Jones, M. E., Murrell, D. L., and Fiddyment, P. J. Heat-treatment behavior of the magnetic properties of epitaxial $Sm_{0.4}Y_{2.6}Fe_{3.2}Ga_{1.2}O_{12}$ (9) 232*g*.
Enomoto, Goro, and Hatta, Hisao Glass system for an ultrasonic delay line, P (9) 205*f*.
Enomoto, Yasushige See Ezaki, Toshiyuki
Entelis, F. S., Schwartzman, E. R., and Sokolova, N. I. Growth of deformation in ceramic bodies (9) 215*g*.
Entin, I. A. See Aleksandrov, L. N.
Entin, M. V. See Chaplik, A. V.
Entin, Z. B. See Kravchenko, I. V.
Epel'baum, M. B., Salova, T. P., and Varshal, B. G. Influence of water on coordination of Al ions in water-containing aluminosilicate glasses (9) 201*d*.
Eppler, Richard A., and Schweikert, William F. Interaction of dilute acetic acid with lead-containing vitreous surfaces (5) 123*b*.
Era, Akio, and Emoto, Takeo Continuous production of electrolytic MnO_2, P (1) 28*f*.
Erekhimzon-Logvinskii, L. Yu. See Vasil'kov, S. G.
Eremenko, L. A. See Sych, A. M.
Eremenko, S. F. Equipment for the loading of brick from drying wagons onto the furnace (9) 206*f*. See Smailov, S. S.
Eremenko, V. N., Lukashenko, G. M., and Sidorko, V. R. Thermodynamic properties of V, Cr, And Mn silicides at elevated temps. (7) 188*j*.
Eremenko, V. N., Velikanova, T. Ya., Artyukh, L. V., and Vishnevskii, A. S. Phase diagram of ternary system Hf-W-C. Solidus surface projection (7) 184*e*.
Eremenko, V. V. See Venitskii, V. N.
Eremenko, V. V., Litvinenko, Yu. G., Motornaya, A. A., and Myatlik, V. I. Exciton-magnon absorption of light in antiferromagnetic siderite (1) 38*h*.
Erickson, Thomas D., and Wolf, Warren W. Glass compositions and their fibers, P (7) 161*g*.
Ericson, J. E., Makishima, Akio, Mackenzie, John D., and Berger, R. Chemical and physical properties of obsidian—a naturally occurring glass (1) 6*a*.
Eriksson, Olle See Andersson, Ingmar
Ermakov, G. F. See Okorokov, S. D.
Ermakova, T. M. See Toropov, A. N.
Ermolaev, E. E. See Prokin, E. S.
Ermolenko, I. M. See Chernov, R. V.
Erni, H. Plant experience with large rotary kilns and conclusions for design and control: I–II (1) 3*j*; Plant experience with large rotary kilns and recommendations for design and control (5) 101*a*.
Erofeev, V. N. See Bondarenko, I. E.
Erokhina, K. I., Zirgulevicius, R., Lemberg, I. Ch., and Pasternak, A. A. Doppler shift attenuation of gamma-ray energy during Coulomb excitation of ^{131}In and ^{115}In (1) 37*e*.
Eror, Nicholas G., and Burn, Ian, Maher, Galeb H. Ceramic dielectric body, P (3) 76*c*.
Ershov, O. S., Pisarevskii, A. M., Volkov, S. E., and Shul'ts, M. M. Effect of memory in electrical properties of Fe silicate glasses (5) 106*a*.
Ershova, Z. V. See Prokin, E. S.
Ertl, M. E. See Dixon, A. J.
Esaki, Leo See Chang, Leroy L.
Esanyan, S. Kh., Laikhtman, B. D., and Lemanov, V. V. Elastic and photoelastic properties of $Gd_2(MoO_4)_3$ crystals near the phase transition (9) 230*i*.
Escaig, B. See Doukhan, N.
Escard, J. See Ehrburger, P.
Escard, Jacqueline H., and Brion, Dominique J. Correction—"Study of composition of leached glass surfaces by photoelectron spectroscopy" (3) 56*a*.
Esch, Ronald P., and Huang, Patrick C. S. Process for controlling insulating film thickness across a semiconductor wafer, P (1) 29*e*.
Eschner, Axel, Grosskopf, Bernd, and Jeschke, Peter Hot-wire method of determining the thermal conductivity of refractory building materials (5) 131*d*.
Esper, Friedrich J. White furnace boats for firing ceramic articles, P (9) 214*a*.
Esper, Friedrich J., and Friese, Karl H. Relation between the structure and the softening behavior of alumina bodies (5) 119*j*.
Esper, Friedrich J., Friese, Karl H., and Pollner, Rudolf Ceramic oxide resistor element, P (5) 127*a*.
Esqueda, Paul See Schmidt, Pierre E.
Estemesov, Z. A. See Kuatbaev, K. K.
Estrada, D. A. See Criado, E.
Estrade, H. See Besson, G.
Esumi, Masashi See Kubo, Kazuhiko
Ethridge, E. C. See Clark, David E.
Etienne, J. See Paulus, M.
Eto, Yoshizumi See Kumada, Akio
Ettenberg, Michael See Gilbert, Stephen L.
Ettmayer, P. See Constant, K.; Gatterer, J.; Kieffer, Richard; Feld, Harald
Eubanks, A. G. See Viehmann, W.
Euler, F. K. See Kachare, A. H.
Evans, A. G., and Charles, E. A. Fracture toughness determinations by indentation (9) 232*c*.
Evans, C. A. Jr. Surface and thin film compositional analysis—description and comparison of techniques (3) 75*g*. See Bakale, D. K.
Evans, C. S., Hunneman, R., and Seeley, J. S. Optical thickness changes in freshly deposited layers of PbTe (7) 171*f*.
Evans, D. L., Teter, M. P., and Borrelli, N. F. Range and kind of order in random tetrahedral structures (1) 44*e*.
Evans, James D Insulative coating for electrical steels, P (7) 154*c*.
Evans, T. G., and Ryder, G. A. Rotational mixing of particulate and fibrous materials, P (5) 130*h*; Granular material mixer, P (7) 175*h*.
Evans, W. A. Large tunnel kilns for sanitaryware (7) 177*b*.
Evdokimov, A. A. See Trunov, V. K.
Evers, J. Darrell Preventive maintenance beats inflation (5) 130*i*.
Evrard, P. See Cornillault, J.
Evseev, Vladimir I. See Derevyankin, Nikolai E.
Evstifeev, E. N. See Belyaev, I. N.
Evstishenkov, V. S., Kuznetsov, A. I., and Basalaeva, T. S. Ion-exchange strengthening of glass used in glass fiber production (3) 57*g*.
Exelle, Stuart See Gillot, Jacques
Eyerly, George B. Control excess air to save fuel (7) 177*a*.
Eysel, Walter, and Roy, Della M. Hydrothermal flux growth of hydroxyapatites by temp. oscillation (1) 40*d*.
Ezaki, Toshiyuki, Furukawa, Kunio, and Enomoto, Yasushige Lining molten metal vessels and spouts with refractories, P (9) 213*h*.
Ezerskii, K. S. See Fedorov, I. Z.
Ezz, S. Y. See Abol Elkarim, O. I.; Gami, A. E.

Fabian, Lutz See Werth, Frank R.
Faccenda, V., Memmi, M., Vantini, N., and Assandri, F. Fish-scale development as a function of H_2 storage capacity of steel and steel-enamel adherence (1) 4*j*.
Facchinelli, Aurelio See Bruno, Emiliano
Fadeev, S. F. See Popova, L. N.
Fadeeva, V. I. See Glyzina, L. N.
Fadeeva, V. I., Portnoi, V. K., Oleinikov, N. N., and Tretyakov, Yu. D. Influence of dislocation defects on the sintering kinetics of ferrite powders (9) 233*e*.
Fadeeva, V. S., Petrova, G. P., and Burmistrov, V. N. Production of ceramic wall tiles from coal beneficiation wastes (5) 124*b*.
Fadley, C. S. See Baird, R. J.
Fagerlund, Goran Critical moisture contents at freezing of porous materials (7) 150*c*; General method for calculation of equilibrium shrinkages of porous materials (7) 151*d*.
Fagherazzi, G., Ferrero, Francesco, and Accattino, Gianfranco Preparation of $BaTiO_3$, P (1) 29*d*.
Fagherazzi, G., and Giarda, L. Effects of wet milling on Ba hexaferrite (9) 217*f*.
Fahey, Dennis M. Sizing, coating, and combined sizing and coating composition for glass fibers, P (5) 114*d*; Coating and combined sizing and coating composition for glass fibers, P (7) 161*f*.
Fahlstroem, Per A. H. H., and Jonsson, Erik A. Arrangement in grinding mills, P (5) 130*a*.
Fahn, Rudolf, and Buckl, Hans Glass and glass products from bentonite (5) 106*g*.
Fain, I. A., Kamenetskii, S. P., Belogrudov, A. G., and Kalugin, G. A. Production of perlite-sillimanite-grog ultralight-weight materials (1) 18*g*.
Fainberg, E. A. See Keshishyan, T. N.
Fainer, I. S. See Klimak, Z. A.
Fairbairn, Thomas E. Spray coating using laser-energy beam, P (7) 154*d*.
Fairbanks, John W., and Machlin, Irving (Editors) Proceedings of the 1974 Gas Turbine Materials in the Marine Environment Conference, B (3) 95*c*.
Fairchild, James L. Automatic control of crystal size distribution, P (1) 31*b*.
Fait, L. Boltless mill linings (7) 150*a*.
Fakhry, A. A. Semiquantitative method for the estimation of As, Sb, and Bi in siliceous rock samples (9) 223*f*.
Falckenberg, Richard, and Lindner, Herbert Apparatus for the production of verneuil crystals, P (3) 76*a*.
Falicov, L. M., and Koiller, Belita Low-temp. conductivity in transition-metal oxides (7) 183*d*.
Fally, Jacques See Lazennec, Yeon
Fan, John C. C., and Henrich, Victor E. Preparation and properties of sputtered MgO/Au, MgO/Ag, and MgO/Ni cermet films (9) 238*a*.
Fan, Liang T. See Lai, Fang S.
Fanguin, Rene See Pradoux, Denise
Farago, Maria Palynological examinations of clays of the Csoznyateto desposit (3) 82*h*.
Fargo, Harland E. See Buchanan, Carl S.
Farha, Floyd, Jr. See Box, E. O., Jr.
Farhat, E., and Robin-Kandare, S. Physical phenomena during the formation of thin layers of AgO (1) 27*a*.
Farhi, R. See Petot-Ervas, G.
Farley, J. M. See Chung, D. Y.
Farley, J. M., and Saunders, G. A. Elastic properties of semiconducting phosphate glasses (3) 56*i*.
Farrell, E. F., and Linz, A. Chemical vapor grown TiO_2 single crystals (3) 72*e*.
Farrington, Grant M., Jr., Harris, J. Donald, and Foessel, Alfred H. Cold molding pitch-bonded refractory, P (1) 21*f*.
Farshtendiker, V. L. See Antonov, V. A.
Faruqi, F. A. See Shah, Imtiaz H.
Fasbender, H. See Haese, U.
Fassbinder, Hans G. See Knueppel, Helmut
Fatemi, Mohammad See Birks, Laverne S.
Fatzer, Elmer G., and Kochka, Edgar L. SiC-coated graphite members, P (5) 122*i*.
Faucher, M., Cabannes, F., Anthony, A. M., and Piriou, B. Arc-imaging technique for measuring high-temp. thermal conductivity and diffusivity of refractory oxides (1) 32*c*.
Faucher, M., and Caro, Paul E. Order and disorder in certain pyrochlore type compounds (7) 184*b*.
Fauconnier, R. Lifting device for building elements, P (1) 31*b*.
Faulkner, Richard D. Quartz-to-glass seal, P (3) 62*c*.
Faulstich, Marga, Geller, Volkmar, Gliemeroth, Georg, and Meckel, Lothar Highly refracting optical glass for correction of high diopter values with low density, P (1) 14*e*.
Faust, William D. Status report on electrostatic production trials of vitreous enamel spraying; Discussion (3) 54*h*.
Fay, Georges See Deschamps, Andre
Fay, Gordon C. Changing and improving existing plants to meet new requirements (1) 30*d*; Basic requirements for plant labor force reduction (3) 93*b*; Operating performance of a new shuttle kiln design (7) 177*b*.
Fayard, Michel See Portier, Richard
Feasby, D. G. See Collings, R. K.
Federer, J. I. See Morgan, C. S.
Fedina, I. V. See Vydrik, G. A.
Fedock, Michael P. See Corbett, Paul M.

Fedorov, I. Z., Galyant, V. I., and Ezerskii, K. S. Stationary apparatus for the pulsed swirling of glass (1) 11*j*.

Fedorov, N. F., and Zagarova, S. A. Solid-phase interaction of group II element oxides with PbO_2 (3) 91*g*.

Fedorov, P. I. See Denisov, Yu. N.

Fedorova, L. F. See Petrova, V. Z.

Fedoruk, R. M. See Bakalkin, A. P.

Fedoseeva, T. I. See Takher, E. A.

Fedotov, A. B. See Uskov, V. A.

Fedotov, V. I. See Batrakov, N. A.

Fedotov, Yu. A. See Raevskii, G. V.

Fedyshin, Ya. I. See Dutchak, Ya. I.

Fehniger, M. J., and Hannon, J. J. Glass inhomogeneity (3) 57*i*.

Feichtner, John D. See Isaacs, Thelma J. ; Roland, George W.

Feige, Fritz Effect of stress rate on fine grinding (1) 30*g*.

Feigelson, Robert S. See Swanson, Rosemarie

Feiten, Karl J. See Halberschmidt, Friedrich

Fekeldzhiev, G., Radkova, A., and Kovacheva, T. Production of cermet materials from some cheaply available natural raw materials (9) 202*e*.

Feld, H., and Fickel, A. Characterization of thermal shock resistance of brittle materials (7) 179*f*.

Feld, Harald, Ettmayer, Peter, and Petzenhauser, Isfried O stablization of α-Si_3N_4 (3) 90*f*.

Feld, I. L. See Lamont, W. E.

Feldman, Carl See Russak, Michael A.

Fel'dman, Ernst B. See Butuzov, Vladimir P.

Fel'dman, V. I. See Kompan, V. N.

Felix, Fred W. Nuclear chemical method for the investigation of Ar, Kr, and Xe diffusion in glasses and vitreous SiO_2 (7) 158*g*.

Fell, Peter H. See Kent, Alan H.

Feltz, A., and Schmalfuss, S. Electronically conducting oxide systems: V, Preparation and properties of $BaVO_3$ (7) 181*h*; VII, Compound $Sr_6V_6O_{19}$ (7) 181*i*.

Feltz, A., Schmalfuss, S., Langbein, H., and Tietz, M. Electronically conducting oxide systems: IV, Compounds $Ba_2VSi_2O_8$ and $BaVSi_2O_7$ (7) 156*f*.

Fen, E. K. See Koval'chenko, M. S.

Fenelon, William J. Glass fiber-reinforced plasterboard, P (9) 205*b*.

Fenerty, Michael J., and Mustoe, David L. Composite seal ring and assembly, P (5) 124*h*.

Fenner, Erich, and Kuschke, Renate $BaTiO_3$ ceramic dielectric element, P (3) 76*b*.

Ference, Joseph See Beall, George H.

Fergus, A. J. See White, Jack C.

Ferguson, R. B. See Hawthorne, F. C.

Ferguson, R. H. Conservation of energy and resources—concern of government with respect to the production of the glass industry (3) 81*a*.

Feric, T. See Krstulovic, R.

Fernandez Arroyo, G. Metallic coatings on glass surfaces (3) 58*a*.

Fernandez, G. E. See Cascarini de Torre, L. E.

Fernandez, M. P. See Garzon Ruiperez, Leon

Fernandez Navarro, Jose Maria See Jurado Egea, J. R.

Fernandez Navarro, Jose Maria, and Jurado Egea, J. R. V semiconductor glasses (3) 59*j*.

Fernandez Navarro, Jose Maria, and Orgaz Orgaz, F. Effect of low-temp. ion exchange on the mechanical resistance and microhardness of industrial glasses in the system Na-Ca-Si (3) 56*b*.

Ferrante, M. J., Stuve, J. M., and Richardson, D. W. Thermodynamic data for synthetic dawsonite (9) 241*e*.

Ferrar, Carl M. Apparatus and method for the production of metal vapor, P (5) 126*i*.

Ferrari, Romano Electrolytic and electrochemical deposits of Ni, Co, and Cu on enameling cast iron items and their effect on enamel adherence (3) 54*j*; Electrolytic and electrochemical deposits of N, Co, and Cu on enameling cast iron items and their effect on enamel adherence: II (5) 103*e*; Electrochemical and electrolytic deposition of Ni, Co, and Cu on cast enamel parts and their influence on enamel adherence (7) 153*i*.

Ferraris, G. See Pepe, F.

Ferreira, Heber Carlos, deSouza Santos, Persio, and deSouza Santos, Helena Ceramic applications of kaolins from northeastern Brazil (Paraiba and Rio Grande do Norte) (5) 133*d*.

Ferrero, Francesco See Fagherazzi, G.

Ferrigno, Thomas H. Opacity modified pigmentary compositions, P (1) 24*f*.

Fertik, Harry A. Control system for mold cooling in glass-forming machine, P (9) 204*j*.

Fesenko, E. G. See Dudkevich, V. P.

Fichtl, Walter, Wiebke, Guenter, Kunst, Helmut, and vonMatuschka, Alfred G. Boriding composition, P (5) 126*j*.

Fickel, A. See Feld, H. ; Gugel, E.

Fickel, A. F., and Kessel, H. Technology and use of dense Si_3N_4 (5) 121*b*.

Fickel, Albrecht, and Petzenhauser, Isfried Method for the production of moldings of great hardness which contain Si_3N_4 and/or Si oxynitride, P (9) 213*b*.

Fiddyment, P. J. See Enoch, R. D.

Fiedler, E., and Sarres, H. W. Methods and machines for applying enamels (3) 54*c*.

Fiedler, Maria-Luise See Stadelmaier, Hans H.

Fiegert, Dietmar Rheometry of inorganic glasses and possible molecular-kinetic evaluation (1) 11*f*.

Fieguth, Peter, Schulte-Oversohl, Manfred, and Fritz, Rolf Inspection and acceptance of ceramic reactor installation for the Th high-temp. reactor (THTR) (9) 220*b*.

Fierens, P., and Picquet, P. Application of a new high-temp. X-ray diffraction unit to the thermosynthesis of Ca silicates (3) 79*f*; Kinetic aspects of the nonisothermal synthesis of Ca-rich silicates (3) 82*f*.

Fierens, P., and Verhaegen, J. P. Hydration of tricalcium silicate by water vapor (5) 100*c*.

Figurovskii, I. A. See Yudin, N. A.

Filatova, V. N., Chernyshov, G. P., Val'yano, G. E., and Pankrat'eva, S. V. Ternary solid solutions based on ZrO_2 (9) 241*g*.

File, D. M. See Beaman, Donald R.

Filep, Gyula See Ivocs, Laszlo

Filipchenko, A. S., and Nasledov, D. N. Heavily doped crystals of *n*-type InSb (1) 39*i*.

Filipovich, V. N., Kalinina, A. M., and Sycheva, G. A. Temp. dependence of nucleation rate of crystal needles in Na_2SiO_3 glass (5) 110*e*.

Filippov, L. P. See El-Sharkawy, A. A.

Filippov, N. A. See Polukhin, V. N.

Fillard, J. P., and deMurcia, M. Low-temp. photoluminescence in SnO_2 high-resistivity monocrystals (9) 234*j*.

Fine, Rana A., and Millero, Frank J. High pressure PVT properties of deuterium oxide (7) 182*a*.

Finelli, Thomas M., Lenoe, Edward, and McAllister, Lawrence E. High-strength C/graphitic C composites, P (3) 69*f*.

Fink, W., Res, M. A., Bednarik, J., and Schneider, W. Visual dichroism in glasses (3) 60*c*.

Finkel'shtein, I. M. See Sleptsov, V. S.

Finkel'shtein, L. Z. See Savel'ev, V. N.

Fiori, C., and Ravaglioli, A. Chemical, mineralogical, and textural transformation in the firing of faience clays (9) 214*h*.

Firestone, R. F., and Heuer, A. H. Creep deformation of 0° sapphire (3) 85*f*; Correction—Creep deformation of 0° sapphire (5) 136*j*.

Firman, Anthony H. See Lucey, Richard J.

Firsov, V. I. See Yamshchikov, V. S.

Firsov, V. M., Obdina, S. P., Davydova, O. V., and Solinov, E. F. Glass, P (9) 204*h*.

Fischer, A., Janke, Dieter, and Schulenberg, Michael Ceramic properties of Ca zirconate at temps. up to 1600°C (9) 227*f*.

Fischer, David J., Kunz, Hans J., and Norby, Thomas E. Reinforced glass electrode structure, P (3) 62*d*.

Fischer, K. See Schober, T.

Fischer, P. G. See Roehrig, H. D.

Fischer, Peter Degree of compaction of ceramic materials before firing (5) 131*c*.

Fischer, R., Pertlik, F., and Zemann, J. Crystal structure of mroseite, $CaTeO_2(CO_3)$ (3) 85*a*.

Fischer, R. L. See Thirumalai, K.

Fischer, Richard, and Ludwiczek, Herbert Computer programs for the calculation of Madelung constants and their recalculation for spinel type (7) 175*i*.

Fischer, W. A., Seeger, M., and Shah, V. Present stage of development of fused lime refractories (5) 118*j*.

Fischer, W. R., and Schwertmann, U. Formation of hematite from amorphous Fe(III) hydroxide (3) 88*d*.

Fischer, Wilhelm A., and Janke, Dieter Metallurgical Electrochemistry, B (7) 191*i*.

Fischer, Wilhelm Anton See Janke, Dieter

Fish, John G. See Pollack, Gordon P.

Fishchev, V. N. See Ordan'yan, S. S.

Fisher, Colin R., and Perry, Louis W., Jr. Thermionic nuclear reactor with internal heat distribution and multiple duct cooling, P (3) 78*i*.

Fisher, E. S., Westlake, D. G., and Ockers, S. T. Effect of H and O on the elastic moduli of V, Nb, and Ta single crystals (3) 86*g*.

Fisher, Joseph J. See May, Earl L.

Fisher, K. Note on the strength of brickwork using Sarabond mortar (5) 115*a*.

Fisherov, A. I. See Pirogov, Yu. A.

Fishman, Herbert, and Kresge, James S. Metal oxide voltage-variable resistor composition, P (5) 127*f*.

Fistul, V. I. See Gimel'farb, F. A.

Fitchmun, Douglas R. SiC article of less than full density, P (7) 168*f*.

Fitton, Robert C. Modified precipitated aluminosilicate pigments, P (3) 83*d*.

Flachsenberg, P. Mfg. lime of controlled quality, allowing for unavoidable fine-grained limestone and taking due account of economy (3) 52*g*.

Flannery, James E. Chemically resistant silicate glass, P (7) 161*e*.

Flannery, James E., Dumbaugh, William H., Jr., and Carrier, Gerald B. Improving the opacity of phase-separated opal glasses by alterations of the interfacial tension (3) 57*a*.

Flannery, James E., and Wexell, Dale R. Spontaneous opal glasses, P (3) 62*g*; Thermally opacifiable glasses, P (3) 62*j*.

Flautt, Martin C. See Wong, Robert

Flax, L. See Bucaro, J. A.

Fleck, James N. See Powell, Joseph W.

Fleet, Michael E. Wurtzite—long-period polytypes in disordered 2H crystals (9) 242*d*.

Fleming, Gordon R., and Ovshinsky, Stanford R. Current controlling device including VO_2, P (1) 28*f*.

Fleming, James W., Jr., Jaeger, R. E., and Miller, T. J. Optical glass, P (9) 205*j*.

Fleming, Joseph P. See Adrian, Norman F.

Fleming, S. J. Authenticity in Art the Scientific Detection of Forgery, B (3) 93*e*; Only antiques have that certain glow (9) 193*g*.

Flengas, S. N. See Grau, A. E.

Flerova, M. I. See Spirina, V. S.

Fletcher, James C. Strain arrester plate for fused SiO_2a tile, P (3) 70*c*; Cermet composition (5) 121*e*; Method and apparatus for measurement of trap density and energy distribution in dielectric films, P (7) 177*d*; Three-component ceramic coating for SiO_2 insulation, P (9) 214*i*.

Fletcher, Kenneth J. See Schiffarth, Josef

Fletcher, N. H. See Majid, C. A.

Fleury, Paul A. Phase transformations—unity amid diversity (5) 143*i*.

Flipot, Alfred J., and Smolders, Armand Improved nuclear fuel tablets, P (7) 174*j*.

Flora, Barney S. See Long, John W.

Florence, D. See Bartholin, H.

Floyd, Samuel B., Jr. See Engelleitner, W. H.

Flynn, Joseph C. See Allen, Fred E.

Foco, Luigi See Montiglio, Ugo

Fodor, Peterne See Trager, Tamas

Fodoreanu, Vladimir Exploration of the effect of ZnO on the crawling of glazes (1) 23*e*; Apatite as a mineralizer in sanitary porcelain bodies (3) 70*h*.

Foelber, B. See Boudriot, H.

Foell, H., Kolbesen, B. O., and Frank, W. Nature of swirls and its significance for understanding point defects in Si (5) 142*d*.

Foessel, Alfred H. See Farrington, Grant M., Jr.

Foex, Marc See Bonet, Claude ; Coutures, J. P. ; Mizuno, Masao ; Yoshimura, Masahiro

Fogelberg, Clement V., and Kujava, John M. Apparatus and method for improved glassware coating, P (3) 60*h*.

Fokin, V. N. See Boiko, G. N.

Fokina, L. L. See Bal'skaya, L. A.

Foldvari, I., and Voszka, R. Optical absorption of Cl^- ions in NaF single crystals (1) 42*h*.

Foley, Kevin M. See Biefeld, Lawrence P. ; Bolen, Charles E.

Foley, Kevin M., and McCombs, Frank P. Glass-fiber-reinforced elastomers, P (3) 61*h*; Binder, P (5) 111*e*.

Foley, Kevin M., and Vigo, Francesco M. Glass fibers coated with compositions containing complex organosilicon compounds, P (7) 161*h*.

Foley, Kevin M., Vigo, Francesco M., and McCombs, Frank P. Glass fiber reinforcement, P (5) 112*f*.

Folkes, M. J., and Arridge, R. G. C. Measurement of shear modulus in high anisotropic materials—the validity of St. Venant's principle (1) 42*b*.

Fomenko, V. A. See Petrin, N. V.

Fomenko, V. S. See Samsonov, G. V.

Fomichev, E. N. See Bondarenko, V. P.

Fomina, N. P. See Maslennikova, G. N.

Fonash, Stephen J. Effects of stress on metal-oxide-semiconductor structures (7) 170*g*.

Fonash, Stephen J., Roger, Jean-Alain, and Dupuy, Claude Role of interfaces in determining the electrical properties of metal oxide-metal structures (7) 186*g*.

Fondy, Phillip L. See Gates, Lewis E.

Fonstad, C. G. See Kwan, S. H.

Fontaine, G. See Blanchin, M. G.

Fontanella, John See Andeen, Carl

Fontanella, John, Andeen, Carl, and Schuele, Donald Low-frequency dielectric constants of α-quartz, sapphire, MgF_2, and MgO (9) 234*j*.

Ford, R. W. See West, H. W. H.

Forgensi, Rudolph See Berg, Allan C.

Forker, Ray B., Jr., and Panzarino, Joseph N. Ceramic masking method, P (5) 130*b*.

Forler, C. Richard, and Heins, Conrad F. Method and apparatus for repairing cracks in plate glass, P (3) 61*h*.

Forman, Richard A. See Bennett, Herbert S.

Forniasiero, M., Michelotto, G., and Scarinci, G. Present knowledge on the microhardness of glass (9) 202*d*.

Forrester, A. J. See Franklin, C. E. L.

Forssberg, Knut S. E. See Kihlstedt, Per G.

Forsthoff, W. Role of preparatory processing at a lime works (3) 53*f*.

Fort, Jean P., and Michel, Max Agglomerated Al_2O_3 based spherical grains, P (9) 226*f*.

Fortin, B. See LeBloa, A.

Foster, D., and Thomas, A. Interim comments on the corrosion of reinforcement in brickwork (5) 114*g*.

Foster, D. L., and Laskar, A. L. Diffusion of ferrous ion in AgCl (5) 137*h*.

Foster, Homer R. See Harrell, William C.

Foster, L. M., and Scardefield, J. E. Flux growth of the Ga analog of β-Al_2O_3 (5) 139*f*.

Foster, Thomas V. Individual section high-speed glassware forming machine, P (3) 61*b*.

Foszcz, Stanislawa, Szczerba, Jacek, and Szablowski, Jerzy Selection of refractories for burning zones of rotary kilns (7) 166*h*.

Fotiev, A. A. See Pletnev, R. N. ; Surat, L. L. ; Volkov, V. L.

Fougeres, Marc P. A. See vanOirschot, Theodorus G. J.

Fougner, Sven Al trichloride and MgO. P (7) 178*f*.

Foulatier, Pierre, Lenglet, Michel, and Tellier, Jean-Claude Phase diagram of the $CuFe_2O_4$-$CuAl_2O_4$ system (7) 184*e*.

Found, M. S. See Owen, M. J.

Fouskova, A. See Sailer, E.

Fowler, C. M. See Taylor, R.

Fraifel'd, M. S. See Guzman, I. Ya. ; Karas, G. E.

Fraifel'd, M. S., Krasotkina, N. I., Yam, V. M., and Gnesin, G. G. Channels from polycrystalline SiC in ingot soaking pits (3) 64*d*.

Fraissard, J. See Che, M.

Francel, Josef, and King, James E. Sealing glass composition with a uniform viscosity, P (1) 15*d*.
Francel, Josef, and Palermo, Robert F. Solder glass with refractory filler, P (9) 206*f*.
Francis, C. W. See Levy, Rachel
Francis, Gerald T. Brick panel construction, P (3) 63*c*.
Francis, R. W., and Worrell, W. L. High-temp. conductivity of AlN (7) 182*b*.
Francombe, Maurice H. See Noreika, Alexander J.
Frangipane, Joseph G. Grinding wheel, P (7) 149*h*.
Frank, David Jeweled porcelain (7) 149*c*.
Frank, Robert G. Conveyor rolls on conveyor roll systems for roll forming apparatus, P (5) 112*a*; Roll forming heat-softened glass sheets, P (5) 114*a*.
Frank, W. See Foell, H.
Franke, P. See Hoebbel, D.
Franke, V., Hegenbarth, E., and Brezina, B. Specific heat measurements on $Tl_2Cd_2(SO_4)_3$ (1) 45*g*.
Frank-Kamenetskii, V. A., Kotov, N. V., Goilo, E. A., and Tomashenko, A. N. Polytypism and transformation of the minerals of the kaolinite group under hydrothermal conditions (9) 237*a*.
Franklin, A. D. Electrode effects in the measurement of ionic conductivity (3) 87*d*.
Franklin, C. E. L., and Forrester, A. J. Development of bone china: I, History of bone china; II, Properties of bone china (7) 168*h*.
Frantsevich, I. N., Kravets, V. A., and Nazarenko, K. V. Plastic deformation of α-SiC (5) 143*j*.
Frantsevich, I. N., Kravets, V. A., Nazarenko, K. V., and Smushkevich, V. Z. Deformation structure of α-SiC single crystals (9) 228*h*.
Franz, Helmut, and Lecocq, David E. Treatment of thin metallic films for increased durability, P (1) 15*h*.
Fray, D. J., and Savory, B. Measurement of the activity of Na in Na + Pb alloys by use of β-alumina (3) 89*d*.
Freck, David V. Fuel particles having pyrolytic C coating for nuclear reactors, P (7) 174*i*.
Frederikse, H. P. R. Electrons in oxides—a summary (7) 181*j*.
Fredstedt, Tage See Kroeyer, Karl K. K.
Freeman, Alan, and Hymers, William Electrically conducting concrete, P (9) 197*a*.
Freeman, K. B., Daniels, T. A., and Applegate, George Control that heat (9) 224*g*.
Freidenberg, A. S. See Perepelitsyn, V. A.
Freiman, Stephen W. See McKinney, Karl R.
Freiman, Stephen W., Mecholsky, John J., Jr., Rice, Roy W., and Wurst, J. C. Influence of microstructure on crack propagation in ZnSe (1) 40*g*.
Freller, Helmut, and Bauer, Briggitte Mixed crystal layers from CdS and CdSe, P (3) 76*h*.
French, Walter K. Cutting hot glass band, P (5) 112*c*; Direct manufacture of tempered glass sheets from a ribbon of glass, P (5) 112*e*; Method and apparatus for forming tempered glass articles, P (7) 162*j*.
French, William G. See Wonsiewicz, B. C.
French, William G., MacChesney, John B., O'Connor, P. B., and Tasker, G. William Optical wave guides with very low losses (5) 108*g*.
Frenkel, Yu. G. See Kalinin, A. N.
Freund, Friedemann See Garn, Paul D.
Frey, J. Richard See Barclay, Francis W.
Frey, Robert C. Selecting an air dryer (9) 224*f*.
Freyberg, Peter See Wurmb, Rolf
Freyburg, E. Operational behavior of large cyclones under the special conditions of the ZAB preheater (5) 100*h*.
Frick, F. Geotechnical and soil mechanics investigations in connection with the planning of a clay pit in the vicinity of public traffic routes (3) 63*a*.
Fricke, A. Possibilities of pneumatic transport of materials without breaking down the granules (5) 130*d*.
Fridman, B. S. See Goikhman, V. Yu.
Fridrikhson, V. E. See Khariton, Ya. G.
Friebele, E. J. See Taylor, P. C.
Friedel, Rudolf, and Ebersberger, Hans Metal-ceramic soldering connection, P (7) 173*b*.
Friedman, F., Weichman, F. L., and Tannhauser, D. S. Hall mobility in single crystals of NiO as a function of temp. and deviation from stoichiometry (1) 39*i*.
Friedrich, Guenther Tonindustrie Heisterholz extend their tile production program to an annual output of 800,000m^2 (7) 163*g*.
Friese, Karl H. Electrically conducting ceramic-to-metal seal, particularly for spark plugs, P (5) 127*e*. See Esper, Friedrich J.
Frieser, Rudolf G., Powell, Jimmie L., and Tummala, Rao R. Low-temp. sealing glasses, P (1) 14*h*.
Fripiat, J. J. See Lerot, L.
Fripiat, Jose M. M. J. Grafting organic groups on Ca silicates, P (3) 54*d*.
Frisch, Erling, and Andrews, Harry N. Nuclear reactor internal construction and failed fuel rod detection system, P (7) 174*c*.
Frischat, G. H. Interdiffusion in glasses (1) 9*b*; Ionic Diffusion in oxide Glasses, B (3) 94*g*; Reactions on oxide glasses (5) 109*f*; Kinetic aspects of ion exchange in glasses (9) 201*b*. See Safdar, M.
Fritsche, Joachim Current practice in mechanical stoking methods for the coal firing of tunnel kilns (3) 81*a*.
Fritz, James S., and King, Jeffrey N. Removal of Cu and Fe prior to water hardness titration (9) 223*f*.
Fritz, Rolf See Fieguth, Peter
Frizzell, S. J. Teamwork in industry (3) 93*e*.
Froberg, Magnus L. Cooling electrically heated melting furnace, P (1) 14*a*.
Froberg, Robert W. See Robba, William A.
Frol'kis, G. Ya. Effectiveness of modernization of 4.5- x 170-m rotary kilns (1) 2*g*.
Frolov, I. A. See Bugaev, N. F.
Frolov, V. A. See Frolova, I. B.
Frolova, A. A., Bogdanova, G. S., Litvinov, P. I., and Ravich, G. B. Effect of CeO_2 on phase transition processes during the formation of cordierite glass-ceramics (3) 56*a*.
Frolova, I. B., and Frolov, V. A. Formation of ferrous melt slag lining on a refractory base (1) 17*g*.
Frolova, L. V. See Dovzhik, V. G.
Fromm, E., and Kirchheim, R. Electronic conductivity and polarization effects of solid ThO_2-Y_2O_3 electrolytes and O-containing vanadium-group-metal electrodes (9) 231*a*; Emf measurements in the O-containing systesm of V and Ta using a ThO_2-Y_2O_3 solid electrolyte (9) 231*d*.
Frosig, Hanne Glass wig (3) 49*g*.
Frost, Rodney I. See Cantaloupe, Francis A.
Frumar, M. See Ticha, H.
Frumar, M., Kala, T., and Horak, J. Growth and some physical properties of semiconducting $CuPbSbS_3$ crystals (1) 39*g*.
Frumerman, Robert, and Brown, William W. Method and apparatus for removing radioactive gases from a nuclear reactor, P (3) 78*h*.
Frumkina, Yu. A. See Prokhorova, I. Ya.
Fry, Ralph Dry process enamel apparatus for bathtubs, P (7) 154*a*; Applying powdered porcelain enamel to metal, P (9) 198*d*.
Fryburg, George C. See Stearns, Carl A.
Fryburg, George C., Kohl, Fred J., and Stearns, Carl A. Enhanced oxidative vaporization of Cr_2O_3 and Cr by O atoms (1) 38*c*.
Fryt, Ewa, Mrowec, Stanislaw, and Podgorecka, Aleksandra New method for calculating the deviations from stoichiometry in transition metal oxides (1) 42*a*.
Fuchigami, Yoshio, and Arima, Yusaku Oxide catalysts, P (7) 179*a*.
Fuerst, H. J. See Reiners, W.
Fuerstenau, Douglas W. See Abouzeid, Abdel-Zaher M.
Fuji, Masao See Iwamoto, Nobuya
Fujie, Hideo, Ochi, Yoshiyuki, and Nakajima, Aisui Gunning materials used in electric furnace (7) 165*d*.
Fujie, Hideo, and Sudo, Makoto High-temp. crushing strength of MgO mortar (3) 51*j*.
Fujihara, Masamichi, and Sakaeda, Osao Carbonation of $Mg(OH)_2$ (5) 98*h*.
Fujii, Kinjiro, and Kondo, Wakichi Rate and mechanism of hydration of tricalcium silicate in an early stage (3) 52*i*.
Fujii, Noriyuki See Okano, Takeo
Fujii, Youji See Kimura, Morihiro
Fujikawa, Nobuyoshi See Minami, Tsutomu
Fujimoto, Shoichiro See Furumi, Koichi
Fujimura, Masanori See Matsuoka, Tomizo
Fujimura, Sohei, Nagai, Bin, and Yanagi, Hiroki Explosive spalling of used SiO_2 refractories (5) 117*f*.
Fujita, Kazumi, Matsuda, Keizo, and Kayama, Isso Synthesis of hydrated alumina gel by the homogeneous precipitation method (5) 134*d*.
Fujiwara, Shigeru See Ochiai, Tsunemi
Fujiwara, Shohei, and Koike, Susumu Planar structure semiconductor device, P (3) 77*b*.
Fujiwara, Teiichi See Shibuno, Masao
Fukazawa, Tokuumi See Takagi, Kazumasa
Fuks, Yu. M., Rossomakha, M. I., Putilin, V. G., and Didyk, B. A. Automatic welding of joints of rotary kiln shell (1) 1*j*.
Fukuda, Seiwa See Kondo, Marekata
Fukuda, Takao See Takamiya, Youichi
Fukuda, Tsuguo, and Hirano, Hitoshi Growth and characteristics of $LiNbO_3$ plate crystals (1) 39*e*.
Fukuda, Yoshiharu, and Ueda, Yoshihiko Method and apparatus for dispersing powdered material in a combustion chamber, P (7) 153*b*.
Fukui, Masao See Hayashi, Kunio
Fukumoto, Yoshihiko See Takeda, Yuji
Fukunaga, Osamu See Hiraoka, Hideo
Fukuoka, Hiromi See Sugita, Kiyoshi
Fukushige, Yasuo See Shimada, Kinji
Fukushima, Jun, Kodaira, Kohei, Tsunashima, Atsumu, and Matsushita, Toru Formation of PbO thin films by thermal decomposition of lead naphthenate (3) 73*b*; Preparation and properties of ZnO thin film by thermal decomposition and Zn naphthenate (5) 126*b*.
Fukushima, Keitaro, Kishimoto, Soichiro, and Nosaka, Yoshinori C fibers, P (3) 69*d*.
Fukushima, Tatsuo See Nakajima, Jun
Fulk, Walter F. Apparatus for coating continuously produced glass filaments, P (7) 160*j*.
Fuller, Clyde R., and Reinberg, Alan R. Contacting and connecting semiconductor devices in integrated circuits, P (1) 28*e*.
Fuller, E. R. See Lawn, B. R.
Fuller, Lee R. See Cable, Stephen J.
Fuller, M. J. Versatile mixed Sn oxide-Sb oxide system (3) 83*h*.
Fuller, Peter G., and Stoeckler, H. A. Ceramic semiconductor elements with ohmic contact surfaces, P (9) 219*d*.
Fulrath, Richard M. See Biswas, Dipak R. ; Holman, Robert L.
Funabiki, Kunio See Kawagoshi, Sakae
Funk, James E. See Webber, Roy A.
Funk, R., Schachner, H., Triquet, C., and Kornmann, M. Coating of cemented carbide cutting tools with alumina by chemical vapor deposition (5) 116*f*.
Funke, G., Keienburg, R., and Sillem, H. Ventilation of sound-insulated mill buildings (3) 53*j*.
Furubayashi, E. See Ikeno, S.
Furuichi, Ryusaburo See Okutani, Takeshi
Furukawa, Junichi, and Kono, Yoshinao Sizing agent for glass fibers, P (3) 62*f*.
Furukawa, Kunio See Ezaki, Toshiyuki
Furumi, Koichi, Fujimoto, Shoichiro, Shikano, Hiroshi, and Ando, Hideyuki Corrosion of brick for converter—wear of brick used in BOF (5) 116*j*.
Furumi, Koichi, Semba, Kimio, and Kaminaga, Yoichi Mineralogical investigation of zircon bricks used in ladle (5) 118*i*; Working surfaces of zircon brick used in LD converter ladles (7) 166*g*.
Fusiek, Michael P. Ceramic fiber gasket, P (3) 69*e*.
Futatsugi, Yuji See Takahashi, Akikazu
Fuwa, A., Anderson, R. N., and Parlee, N. A. D. Thermodynamics of nitride formation in liquid U-Gd-Sn alloys (5) 146*e*.
Fuwa, M., Bunsell, A. R., and Harris, B. Evaluation of acoustic emission techniques applied to C fiber composites (7) 165*a*.
Fuwa, M., Harris, B., and Bunsell, A. R. Acoustic emission during cyclic loading of C-fiber-reinforced plastics (3) 63*f*.
Fuziwara, Yutaka See Kushihashi, Akira

Gabdulkhaev, R. L. See Klyachin, V. V.
Gabelko, A. B. See Kuzovlev, A. K.
Gablin, Kenneth A. Repository for fissile materials, P (5) 129*b*.
Gabor, Fred How to cut energy costs and be a hero (9) 224*c*.
Gabrail, Sami I. Etchant for removing metals from glass substrates, P (9) 204*e*.
Gadalla, A. M. See Abol Elkarim, O. I. ; Gami, A. E. ; Swilam, M. N.
Gaevskaya, L. A. See Kislyi, P. S.
Gagea, Lucia See Lukacs, Ileana
Gai, P. L., Anderson, J. S., and Rao, C. N. R. Direct lattice imaging of SiC (1) 36*j*.
Gai, P. L., and Rao, C. N. R. Cation ordering in $Ln_{1-x}Sr_xCoO_3$ (1) 35*f*.
Gaidis, James M. See Stierli, Robert F.
Gaiduk, A. P. See Kovchur, S. G.
Gaiduk, A. P., Ukhina, E. V., and Gigevich, V. S. Spectrographic analysis for monitoring the composition of raw materials, charge, and glass (1) 11*i*.
Gaidukov, Yu. P. See Voloshin, I. F.
Gaidzhurov, P. P., and Zubekhin, A. P. Chemistry of white and colored cements (5) 98*c*.
Gaipel, W. See Schroeder, W.
Gajendragadkar, S. K. See Mujumdar, N. S.
Gajerski, Ryszard See Kowalska, Anna
Gakel, V. R. Interactions between the hypersonic and spin waves in antiferromagnetic $MnCO_3$ (9) 233*c*.
Galaev, A. A., Parkhomenko, Yu. N., Safonov, Yu. S., and Shvartsman, V. L. Experimental technique and calculation of low-energy electron diffraction patterns (1) 38*i*.
Galan Huertos, E. See LaIglesia, A.
Galan Huertos, E., and Martin Vivaldi, J. L. Spanish kaolins—geology, mineralogy, and origin: V. Cretaceous Utrillas deposits (3) 83*d*; Spanish kaolins—geology, mineralogy, and origin: VIII, Residual and volcanic deposits, typology, and conclusions (7) 178*b*.
Galantseva, T. V. See Denisov, Yu. N.
Galasso, Francis S. See Veltri, Richard D.
Galasso, Francis S., Jacob, Bernarr A., and Graf, Robert B. B filament having a TiC-coated substrate, P (1) 21*a*.
Gal'chenko, T. G. See Usatikov, I. F.
Galdikas, A. See Bareikis, V.
Galdina, N. M. Recommended uses for refractory materials in the glass industry (1) 19*j*. See Mirkin, L. V.
Galdina, N. M., and Snezhko, V. D. Burner blocks for glass furnaces made of heat-resistant high-Al material (3) 64*a*.
Galdina, N. M., Verlotskii, A. A., Kishmishyan, A. A., and Rybalkin, P. T. Production technology of electric-melted high-ZrO_2 refractories (1) 18*h*.
Galev, V. N., and Rabin'kin, A. G. Effect of high hydrostatic pressure and residual strain on the superconductivity of Nb-Al-Ge alloys with an A15c.
Galiakberov, R. G., Vorob'eva, S. A., Bagaeva, E. D., and Khainer, S. P. Manufacture of clay-sand facade tiles based on phosphate binder (9) 207*e*.
Galkin, A. A., Popovich, A. I., Degtyar, E. P., and D'yachenko Magnetoacoustic investigation of the electron structure of Ga under pressure (9) 234*g*.
Galkina, O. S., Ivanov-Smolenskii, G. A., and Kondorskii, E. I. Unidirectional anisotropy in Invar alloys (5) 146*j*.
Gallagher, P. K., and Johnson, D. W., Jr. Kinetics of formation of $LiFeO_2$ from $2Li_2CO_3.Fe_2O_3$ mixtures (5) 141*e*.
Gallagher, P. K., Johnson, D. W., Jr., Vogel, E. M., and Schrey, Frank Effects of the Pt content of $La_{0.7}Pb_{0.3}MnO_3$ on its catalytic activity for the oxidation of CO in the presence of SO_2 (1) 38*d*.
Gallagher, Patrick K. See Johnson, David W., Jr.
Gallagher, Patrick K., Johnson, David W., Jr., and Schrey, Frank Some effects of the source and calcination of FeO on its sintering behavior (9) 218*e*.
Gallen, Thomas J. Apparatus for spray coating articles, P (1) 31*b*.
Galli, Ermanno, and Alberti, A. Crystal structure of stellerite

(5) 136*h*.

Gallyas, Miklos, and Gemesi, Jozsef Determination of operational parameters of vibratory ball mills by radioactive tracing (5) 99*b*.

Galoshina, E. V. See Volkanshtein, N. V.

Gal'perin, Yu. M., Gurevich, V. L., and Kozub, V. I. Nonlinear acoustic effects in superconductors (1) 42*g*.

Gal'perina, M. K. Action of electrolytes on the bound water of clay suspensions (1) 22*d*.

Gal'perina, T. Ya., and Potetenko, L. V. Color stability of decorative cements (5) 98*c*.

Galusha, Richard E., Kane, William T., Megles, John E., Jr., and Williams, Joseph M. Subsurface-fortified glass laminates, P (9) 206*g*.

Galushkin, A. P., Sal'nikov, K. Ya., and Krys'kov, V. I. Al Cr silicate fiber with increased thermal stability (3) 63*i*.

Galushko, I. K. Kinetics of the crystallization of glaze coatings (1) 23*i*.

Galy, Jean See Carpy, Alain ; Portier, Richard

Galyant, V. I. See Fedorov, I. Z.

Gambino, Michele, and Bros, Jean-Pierre Thermodynamic properties of Ga+Sb (3) 93*d*.

Gambling, W. Alec See Payne, David N.

Gami, A. E., Gadalla, A. M., and Ezz, S. Y. Mechanical and chemical enrichment of nepheline ores (7) 178*i*.

Gamlem, Karsten See Lyng, Stig

Gandais, M. See Boissonade, J.

Gandhi, Haren S., Stepien, H. K., and Shelef, Mordecai Optimization of Ru-containing, stabilized, nitric oxide reduction catalysts (1) 34*a*.

Ganeev, I. G. Chemical aspects of hydrothermal growth of crystals (9) 227*a*.

Gangas, N. H. See Simopoulos, A.

Ganguli, Dibyendu See Chatterjee, Minoti

Ganguli, N. C. See Tiwari, R. N.

Ganguly, A. K., David, K. L., Webb, D. C., and Vittoria, C. Magnetoelastic surface waves in a magnetic film-piezoelectric substrate configuration (9) 234*h*.

Ganguly, B. K., and Hasselman, D. P. H. Effect of matrix conductivity on the radiation heat transfer across spherical pores (3) 86*d*.

Ganguly, B. K., McKinney, Karl R., and Hasselman, D. P. H. Thermal-stress analysis of flat plate with temp.-dependent thermal conductivity (1) 12*d*.

Ganieva, R. N. See Sheikh-Zade, R. M.

Gann, V. V. See Makarov, V. I.

Ganyuchenko, V. M., Petrov, Yu. B., Nezhentsev, V. V., and Mogilenskii, V. I. Induction melting of oxides for ceramics (5) 117*a*.

Ganz, Robert H. Bottle packaging machine, P (7) 161*d*.

Gaodu, A. N. See Saenko, E. P.

Gaodu, A. N., Pirogov, A. A., Gavrish, A. M., and Drizheruk, M. E. Thermal stability of kaolin wool (9) 212*f*.

Gaodu, A. N., Subochev, I. G., Pitak, N. V., and Yuzbuk, D. I. Refractory fibers from natural raw materials (5) 119*i*.

Gapeev, A. K. See Belov, K. P.

Gapeev, A. K., Levitin, R. Z., Markosyan, A. S., and Mill, B. V. Magnetic anisotropy of Y-Ho ferrite garnets (5) 125*e*.

Gaprindashvili, A. I. See Batrakov, N. A.

Gaprindashvili, G. G. See Komskaya, M. S.

Garanin, A. V. See Shchekina, T. I.

Garard, James H., and Bharwani, Govind High-performance metal-bond wheels cut cost of vertical-spindle surface grinding (3) 49*c*.

Garbacik, Albin See Peukert, Janina

Garbriel, Michel See Bauwens, Robert

Garcia Verduch, A. Use of quartz in the composition of ceramic bodies (3) 72*c*. See Martinez Caja, L. ; Moya Corral, J. S.

Garcia Verduch, A., Requena Balmaseda, J., and Moya Corral, J. S. Thermal behavior of granitic rocks (3) 83*e*.

Garcia-Blanco, S. See Pardo, J.

Gard, J. A. See Moir, G. K.

Gardner, Larry E., Grenawalt, John J., and Birkle, Adolph J. Rimmed enameling steel, P (7) 154*c*.

Gardner, Richard A. High-alumina-content compositions containing BaO-MgO-SiO_2 glass and sintered ceramic articles made therefrom, P (5) 127*c*.

Gardner, W. B. Microbending loss in optical fibers (5) 108*g*.

Garg, S. K. See Rehsi, S. S.

Garick, Bordie B. See Ward, John E., Jr.

Garlick, G. F. J. See Speed, A. R.

Garn, Paul D. See Selvaratnam, M.

Garn, Paul D., and Freund, Friedemann Variation of the thermal decomposition of $Mg(OH)_2$ with water vapor pressure (3) 93*i*.

Garnett, George W. Control of dust during discharge of materials into hoppers, P (3) 79*d*.

Garnier, John E., Rupaal, Ajit S., and Bates, J. Lambert Application of acoustic emission to evaluation of dielectric breakdown in insulator materials (7) 170*j*.

Garnier, P. R. Method of providing simultaneous measurements of absorption and scattering losses in optical fibers (5) 108*f*.

Garrett, K. W., and Rosenberg, H. M. Thermal conductivity of metal/dielectric-powder composites (3) 75*j*.

Garska, E. See Sakalauskas, K.

Gartia, R. K. See Ratnam, V. V.

Gartman, William W. Solution growth system for the preparation of semiconductor materials, P (5) 128*e*.

Garvie, R. C., Hannink, R. H., and Pascoe, R. T. Ceramic steel (9) 227*g*.

Garzon Ruiperez, Leon, and Fernandez, M. P. Mica radioactive dating (1) 34*h*.

Gaskell, P. H., and Johnson, D. W. Optical constants of quartz, vitreous SiO_2, and neutron-radiated vitreous SiO_2: I (7) 158*h*.

Gas'kov, A. M. See Zlomanov, V. P.

Gast, T. See Boewing, H. A.

Gates, Lewis E., Morton, Jerry R., and Fondy, Phillip L. Selecting agitator systems to suspend solids in liquids (7) 175*b*.

Gatineau, L. See Besson, G.

Gatterer, J., Dufek, G., Ettmayer, P., and Kieffer, Richard Cubic Ta mononitride (B1) and its miscibility with the isotypic mononitrides and monocarbides of the 4a and 5a group metals (7) 180*i*.

Gauckler, L. J., Lukas, H. L., and Tien, T. Y. Crystal chemistry of β-Si_3N_4 soild solutions containing metal oxides (9) 228*i*.

Gaude, Jean, Guyader, Jean, and Lang, Jean $Sm_{10}Si_6N_2O_{24}$—first example of N apatite (7) 186*e*.

Gauge, Thomas P., Kocsis, Joseph, and Buchanan, James R. Forming MOS structure using double diffusion, P (3) 76*b*.

Gavaler, J. R., and Janocko, M. A. Ultra-high-vacuum electrical feedthrough (9) 218*i*.

Gavaler, John R., Hulm, John K., Janocko, Michael A., and Jones, Clifford K. Thin-film superconductors, P (3) 77*j*.

Gavioli, G., and Palmonari, C. Theoretical approach to particle trajectory in mixed-flow spray dryers (9) 221*f*.

Gavrilenko, O. I. See Grankovskii, I. G.

Gavrilov, F. F., Kruzhalov, A. V., Polupanova, T. I., and Rogovich, V. I. Spectroscopic properties of orthovanadates activated by rare earth elements (9) 239*c*.

Gavrish, A. M. See Gaodu, A. N.

Gavrish, D. I., Abbakumov, V. G., and Borisov, V. G. Effectiveness of using O in furnaces for sintering refractory materials (1) 17*j*.

Gavrish, D. I., Abbakumov, V. G., Borisov, V. G., and Shchedrov, S. A. Firing of magnesite using O in a rotary kiln (1) 17*f*.

Gazza, George E. Effect of Y_2O_3 additions on hot-pressed Si_3N_4 (1) 17*i*. See Messier, D. R.

Gazzoni, G. See Calleri, M.

Gebe, S. See Bajza, A.

Gebhardt, Franz Limitations and description of the raw material situation (9) 201*g*.

Gebica, Marian Atm protection in the cement, lime and gypsum industries (7) 149*i*.

Geck, Hans-Guenter, Jeschke, Peter, and Schaefer, Herbert Semitechnical and simulated service tests on bricks for the roofs of electric arc steel furnaces (5) 120*f*.

Gedzhadze, I. V. See Shapakidze, V. N.

Geelen, J. Multicolor transfer printing machines (9) 215*f*.

Gehri, Aime Fuel element shipping shim for nuclear reactor, P (1) 30*g*.

Gehri, Dennis C. See Grantham, LeRoy F.

Gehrke, R. J., and Davies, R. C. Spectrum fitting technique for engery dispersive X-ray analysis of oxides and silicates with electron microbeam excitation (3) 81*b*.

Geiler, Volkmar See Faulstich, Marga

Geirnaert, G. Ceramics-liquid metals—compatibilities and angles of wetting (1) 35*h*.

Gekhtman, Ts. M. See Nisman, M. S.

Gelb, T. See Holland, A. E.

Gel'd, P. V., Levin, E. S., Pavars, I. A., and Jakubchik, V. P. Short-range order in amorphous M_2Ge_3 films (9) 238*i*.

Gelder, Erich Trends in integrated circuits (5) 126*e*.

Gel'fand, Ya. E. See Kalinin, A. N.

Gelfman, Ephrem J. Cutting glass bottles, P (1) 14*b*.

Geller, I. Kh., Kolomiets, B. T., and Popov, A. I. Crystallization of Se under the action of an electrical field of varying frequency (3) 85*e*.

Gelsdorf, G., and Schellberg, F. Modern building materials for high temps.—bodies, refractory mortar, and cement (5) 118*a*.

Gelsdorf, Guenther See Majdic, Aleksander

Gemesi, Jozsef See Gallyas, Miklos

Gemmer, Wolfgang Model investigation of crack formation in a locally cooled glass plate (7) 158*c*.

Gemmerling, G. V. See Spirina, V. S.

Gencheva, G. See Gerasimov, E.

Gencheva, G., Isakova, M., and Konstantinova, L. Interrelation between phase composition and properties of ceramic face tiles (9) 215*a*.

Gencheva, G., and Lepkova, D. Effect of additives on the properties of chemical- and heat-resistant mullite-cordierite ceramics (9) 208*j*.

Gencheva, G., Mikhailova, P., Isakova, M., and Buchvarov, S. Low-temp. raw glazes for facade tiles made from rocks (5) 123*f*.

Gene, V. V., Dudnik, E. F., and Sinyakov, E. V. Pb orthovanadate—antiferroelectric and ferroelastic (9) 234*i*.

Genkin, V. M. See Abrikosov, A. A.

Genthner, Werner Method and apparatus for producing laminated glass sheets with thin wires arranged in a thermoplastic intermediate layer, P (9) 205*g*.

Gentil, L. A. See Baran, Enrique J.

George, A., and Champier, G. Meaning of dislocation velocities measured in doped Si (5) 141*i*.

George, H. See Gerlach, W.

George, James S. Process for the conversion of anhydrite into gypsum, P (1) 34*j*.

George, Kenneth D. See Arino, Hirofumi

Georgeoni, Paul, and Deju, Radu Granulation of U oxide powders (5) 128*i*.

Georgiev, M., and Todorov, T. Evidence for thermally activated deexcitation of excited F and F_A(Na) centers in KCl (1) 38*g*.

Georgieva, L. See Vuchvarov, S.

Gerasimenko, V. S. See Poltavtsev, Yu. G.

Gerasimov, E. See Panova, S.

Gerasimov, E., Lepkova, D., and Gencheva, G. Effect of MgO on the chemical and thermal stability of mullite-cordierite ceramic (9) 209*g*.

Gerasimova, L. V. See Rashina, E. P.

Gerberich, W. W., and Stout, M. Discussion of thermally activated approaches to glass fracture (7) 156*e*.

Gerdzhikov, D., and Bogdev, A. Production of perforated bricks from clays with combustible additives during burning in a tunnel furnace with liquid fuel (9) 207*i*.

Gergert, I. E. See Kravchenko, I. V.

Gerhaher, Max Ridge [roof] tile, P (1) 16*b*.

Gerlach, U. See Oppermann, H.

Gerlach, W., and George, H. Enameling technique (3) 54*a*.

German, V. O., Zektser, M. P., Parfenov, B. V., and Oleinik, G. S. Behavior of polycrystalline SiC in an air plasma jet (3) 72*a*.

Gershkovich, B. M. Rapid method for determining the viscosity of materials using a floating funnel (9) 223*e*.

Gertz, U. Walter Popp (5) 97*f*.

Get'man, Anatoly F. See Shul'zhenko, Alexandr A.

Get'man, E. I. See Zvoleiko, P. T.

Getman, I. A. See Bakalkin, A. P.

Geyer, Karl H. Production of gas-tight connections to crystalline Si or SiC components, P (9) 214*a*.

Gfeller, F. R. See Pitt, C. W.

Gharib, S. See Ammar, M. M.

Gheorghe, Gabriela See Russu, R.

Ghita, C. See Baltog, I.

Ghita, L. See Baltog, I.

Ghodsi, Medhi See Derie, Rene

Ghoneim, N. A. See El-Batal, H. A.

Ghose, S. S., and Bose, A. K. Capacity expansion of steel a challenge to refractory industry (3) 64*b*.

Ghose, Subrata See Wan, Che'ng

Ghosh, Amal K., Addiss, R. R., Jr., and Lauer, R. B. Excitation mechanism of the Cr^{3+} luminescence center in $SrTiO_3$ (7) 182*e*.

Ghosh, B. N. See Mittra, S. K. ; Verma, T. N.

Ghosh, D. K. See Bishui, B. M.

Ghosh, R. K., and Vijayaraghavan, S. R. Estimation of the cement content of hardened concrete by a nuclear method (1) 32*j*.

Ghoshtagore, R. N. Phosphorus diffusion processes in SiO_2 films (3) 74*a*.

Giallorenzi, T. G. See Weller, J. F.

Giani, Enrico, and Kelly, Roger Thin SnO_2 films formed by sputtering and by anodizing (1) 27*f*.

Giarda, L. See Fagherazzi, G.

Gibbs, Dale S. See Anschutz, James E.

Gibbs, Stephen E. See Colliver, David J.

Gibbs, W. E. K., and Butterfield, A. W. Absorption of thin film materials at 10.6μm (5) 104*e*.

Gibson, Howard T. Endless fiber-glass belting, P (5) 112*g*.

Gibson, John W., and Meijer, Paul H. E. Nonlinearly generated harmonics and attenuation of Rayleigh waves on crystalline quartz (9) 235*j*.

Gibson, R. Radio waves (3) 81*f*.

Giddings, Robert A., and Gordon, Ronald S. Solid-state coulometric titration—critical analysis and application to wustite (1) 27*j*.

Giegerl, E. Attack of reducing acids during etching of sheet steel surfaces (.

Gielisse, P. J. See Ananthanarayanan, K. P.

Gierek, A. Al-Cr phosphate used as a binder in foundry work (3) 63*h*.

Gieroszynska, K. See Sujak, B.

Gieroszynski, A. See Sujak, B.

Giese, R. F., Jr. Electrostatic energy of columbite/ixiolite (9) 231*c*.

Gigevich, V. S. See Gaiduk, A. P.

Gigliotti, Michael F. X., Jr., and Greskovich, Charles D. Ceramic molds having a metal oxide barrier for casting and directional solidification of superalloys, P (9) 212*g*.

Gilbert, Franklin G. See Colvin, Floyd E.

Gilbert S. V. Rotary slag testing of basic refractories (9) 211*f*.

Gilbert, Stephen L., and Ettenberg, Michael Epitaxially growing a semiconductor material on a substrate from the liquid phase, P (1) 28*i*.

Gilbert, T. Current criteria for the conditions for emission of gaseous fluoride compounds from brick plants (3) 62*g*.

Gilbreath, William P. See Christian, Jerry D.

Gilchrist, K. E., Brocklehurst, J. E., and Ware, J. O. Thermal property measurements on UO_2-Mo composites (1) 30*b*.

Giles, William F. See Brady, William C.

Gilev, Yu. P. See Kaibicheva, M. N.

Gilhart, Jack S. See Brueggemann, Walter H.

Gillery, Frank H. Apparatus for coating glass, P (1) 13*a*; Electrically conductive coating, P (9) 219*g*.

Gilles, J. C. See Bassoul, P.

Gillot, Jacques, Nussbaum, Marcel, Exelle, Stuart, and Lux, Benno Composite material, P (1) 21*h*.

Gillson, J. L. See Sleight, Arthur W.

Gil'man, I. Ya. See Samsonov, G. V.

Gilmour, John B. See Oshida, Otto A.

Gilod, V. Ya., Astsaturov, V. N., Vagapova, R. V., and Ramenskaya, E. S. Cupola furnace of mineral wool production (9) 208*f*.

Gimel'farb, F. A. See Shevchenko, E. G.

Gimel'farb, F. A., Govorkov, A. V., Mil'vidskii, M. G., and Fistul, V. I. Microcathode luminescent study of impurity of inhomogeneity in GaAs single crystals (9) 235*e*.

Gimple, James J., Lasley, Charles T., and Rogers, Daniel M. Electrostatic spray gun for powder coating material, P (7) 175*g*.

Gindina, V. E. See Titovskaya, V. T.

Ginsburg, S. L., Korenblit, I. Ya., and Shender, E. F. Spin waves and density states in disordered ferromagnetic substances (1) 45*g*.

Gintilas, S. See Baubinas, R.

Gin-yar, E. A., Kochetova, A. P., and Belyaeva, L. A. Technological properties of refractory clays from the Oktyabr'sk deposit (1) 20*e*.

Ginzburg, V. M., Guseva, I. N., Kramarenko, V. A., and Presnyakov, Yu. P. Process of growth of monocrystals from a solution studied by a holographic method (1) 44*a*.

Giorgi, Tiziano A. See Della Porta, Paolo

Girgis, Badie S. Structure variations accompanying dehydroxylation-rehydroxylation of serpentine (7) 187*f*.

Girgis, Lamey G. See Abd-el-nour, K. N.

Giridharan, A. S., Udupa, M. R., and Aravamudan, G. Preparation and characterization of a new Ti(I) uranate(VI)—Tl_4UO_5 (9) 237*d*.

Girzbel, A. M., and Markov, K. D. Testing of building materials for their wear resistance (9) 223*h*.

Gitis, E. B., Vasil'eva, L. F., and Annopol'skii, V. F. Kinetics of dehydration of kaolins in nonisothermic conditions (9) 234*c*.

Gittins, J. See Cooper, A. F.

Gittus, John Creep, Viscoelasticity, and Creep Fracture in Solids, B (5) 147*h*.

Gizhinskii, A. R. See Bushuev, N. N.

Gjorv, O. E. See Mehta, P. K.

Gladstone, Matthew T., and Supkis, Stanley J. Coated abrasive material, P (9) 193*g*.

Gladu, Yves TiO_2 pigment with improved wettability and dispersibility in coating compositions, P (7) 179*c*.

Gladysheva, M. N. See Gnedashevskaya, E. S.

Glagoleva, L. M. See Solomatov, V. I.

Glagoleva, N. N. See Glazov, V. M.

Glass, Alexander J., and Guenther, Arthur H. (Editors) Laser Induced Damage in Optical Materials: 1975, B (7) 191*d*.

Glasser, F. P. See Gunawardane, R. P. ; Moir, G. K. ; Sorrentino, F. P.

Glasser, F. P., and Marr, J. Quaternary phases in the system CaO-MgO-Al_2O_3-SiO_2 (7) 185*h*.

Glauser, A. Methods of graphic representation in cement chemistry, with due regard to the equivalent norm (3) 52*g*.

Glawe, George E. New high temp. noble metal thermocouple pairing (7) 176*f*.

Glazachev, B. S. See Landa, Ya. A.

Glazman, M. S. See Abbakumov, V. G.

Glazov, V. M., Glagoleva, N. N., and Nagiev, V. A. Evaluation of heat of fusion of InAs by method of quantitative thermal analysis (5) 139*h*.

Glazov, V. M., Nagiev, V. A., and Glagoleva, N. N. Separate and joint solubility of Zn, Cd, and Te in InAs (5) 145*e*.

Glazov, V. M., and Potemkin, A. Ya. Interaction of Cu and Sb in Ge-based solid solution (3) 89*f*.

Glazyrin, M. P., Ivakin, A. A., and Alyamovskii, S. I. Phase diagrams of the pseudobinary systems $Mg(VO_3)_2$-KVO_3, $Mg(VO_3)_2$-$Sr(VO_3)_2$, and $Ca(VO_3)_2$-$Sr(VO_3)_2$ (9) 236*h*.

Glebycheva, A. I. See Maslennikova, G. N.

Gleitzer, Charles See Parmentier, Michel; Courrier. B.

Gliemeroth, Georg Producing photochromicity in untreated glasses of suitable composition by a temp. treatment in a liquid, P (7) 162*h*. See Faulstich, Marga

Gliemeroth, Georg, and Meckel, Lothar Glassy or crystalline material for phototropic thin layers, P (7) 162*a*; Chemically hardened spectacle crown glass, P (9) 204*f*.

Glikin, S. M., Drozdov, V. A., Kabanov, N. P., and Lazarenko, A. L. Shaped Structural Glass, B (7) 192*f*.

Glinchuk, K. D., and Prokhorovich, A. V. Characteristics of the Cu-induced 1.35 eV emission band in *p*-GaAs (5) 135*h*.

Gloge, Detlef C. Optical-fiber packaging and its influence on fiber straightness and loss (5) 108*d*. See Chinnock, Edwin L. ; Smith, Peter W.

Gloge, Detlef C., Smith, Peter W., Bisbee, D. L., and Chinnock, Edwin L. Optical fiber end preparation for low-loss splices (5) 108*c*.

Glucklich, Joseph, and Korin, Uri Effect of moisture content on strength and strain energy release rate of cement mortar (3) 51*j*.

Glushkova, V. B., Krzhizhanovskaya, V. A., D'yakovskii, V. S., and Abramova, V. M. Effect of degree of dispersion of HfO_2 on its interaction with Ln_2O_3 (5) 137*c*.

Glyzina, L. N., Fadeeva, V. I., and Tret'yakov, Yu. D. Synthesis of β-Na aluminate (5) 145*h*.

Gnadlinger, A. Backing plate for tile, P (1) 24*a*.

Gnatenko, Yu. P. See Vertsimakha, Ya. I.

Gnedashevskaya, E. S., and Gladysheva, M. N. Determination of Cl in slag glass-ceramic (1) 6*h*.

Gnesin, G. G. See Fraifel'd, M. S.

Gnesin, G. G., Dyban, Yu. P., and Osovitskii, E. I. Development of a high-density SiC material for heating elements using a planning method (5) 116*e*.

Gnidash, N. I. See Bazakutsa, V. A.

Gnip, I. Ya., and Kishonas, A. P. Thermal conductivity of mineral wool slabs based on synthetic binders (9) 212*e*.

Gnyra, Bohdan Precipitation of alumina trihydrate from Bayer pregnant liquors, P (1) 34*j*.

Gochev, G. See Marinov, M.

Godlewski, Kazimierz See Stoklosa, Andrzej

Godron, Y. Bibliographic study of the electrochemical phenomena related to the mechanism of oxides and the corrosion of refractory materials by molten glasses (1) 5*f*.

Goebel, H. See Dettmer, K.

Goebel, Klaus Facade claddings of extruded ceramic "split" tiles and half bricks according to German Standard Specification DIN 18 515 (7) 163*b*.

Goel, A. P., and Agrawal, V. K. Process selection for abatement of SO_2 pollution (3) 93*c*.

Goenner, Winfried K. Reusable sealed coupling for glass tubes, P (9) 206*c*.

Goerlich, Edward, and Handke, Mirosiaw Ir and Raman spectroscopy investigation of Ca_2SiO_4 polymorphism: I–III (7) 182*j*

Goernert, P., and d'Ambly, C. G. Investigation of the growth and the saturation magnetization of garnet single crystals $Y_3Fe_{5-x}Ga_xO_{12}$ and $Y_3Fe_{5-x}Al_xO_{12}$ (5) 140*h*.

Goes, C. New 3000 ton/day Alemannia cement plant at Hoever (9) 195*g*.

Goesele, Karl, and Lakatos, Bertalan Improvement in acoustic damping by filling insulating glass units with gas (1) 8*h*.

Goesslig, H. H., and McGulloch, H. W. A. Fluorspar—the rise of a nonmetallic mineral (9) 225*d*.

Goetz, J., Hoebbel, D., and Wieker, W. Constitution of silicate anions in crystalline $2PbO.SiO_2$: I-II (7) 155*b*; Silicate groupings in glassy and crystalline $2PbO.SiO_2$ (9) 203*d*.

Goetzberger, Adolf, and Kellner, Walter Doping an insulating layer, P (3) 76*i*.

Goff, Nigel J. See Bowkley, Ian G.

Goff, T. N. See White, Jack C.

Goffi, Luigi Deformation properties of brick elements used in mixed structures together with concrete (7) 163*a*.

Gogarty, William B. See Knight, Bruce L.

Goggi, Francesco, and Sonsini, Giovanni Setting up an installation for mfg. enameled architectural panels: IV (1) 4*e*.

Gogotsi, G. A., Grushevskii, Ya. L., and Kurashevskii, A. A. Determination of the refractory strength taking into account the interrelation between stress and strain (9) 222*f*.

Goikhman, V. Yu., Izhak, A. P., and Fridman, B. S. Flame-photometric estimation of Na and K in Ca-rich glasses (1) 8*h*; Complete analysis of glass by emission spectroscopic methods (5) 105*f*.

Goilo, E. A. See Frank-Kamenetskii, V. A.

Goldinger, John A., and Peterson, Dwight R. Method and apparatus for transferring articles from a conveyor, P (3) 61*h*.

Gol'dinova, R. N. See Chernyakhovskii, V. A.

Goldmann, W., and Kreft, W. Experience with a new gas sampling technique for monitoring the firing of rotary kilns (5) 99*c*.

Goldner, R. B., and Haskal, H. M. In Sn oxide-coated Si as a selective absorber (3) 73*h*.

Gol'dshtein, L. Ya., Oleshko, L. V., Popov, I. V., and Gusev, A. I. Portland cement containing granulated fuel slags (1) 3*j*.

Goldsmid, H. See Kaila, M. M.

Goldsmith, Norman, and Robinson, Paul H. Growing thick epitaxial layers of Si, P (7) 172*i*.

Goldstein, L. F., Thompson, J. S., Schroeder, J. B., and Slattery, J. E. Stress-optic coeffs. of ZnSe (5) 110*h*.

Goldstein, Leon, Dormann, Jean-Louis, Druilhe, Raymond, and Guittard, Maurice Chemical transport of $FeCr_2S_4$ (1) 36*a*.

Goldsztaub, Stanislas See Carriere, Bernard

Goleminov, N. G., Kramer-Ageev, E. A., and Mironov, Yu. A. Carrier removal rate in neutron-irradiated Si (1) 35*f*.

Golenko, V. P. See Kulakov, M. P.

Golic, L. See Drofenik, M.

Golobach, I. I., Dovgoshei, N. I., Slivka, V. Yu., and Suslikov, L. M. Optical reflection of crystals and glasses of compounds $AgB^{V}S_2$ (5) 108*e*.

Golobokov, Yu. N. See Aseev, A. L.

Golovei, M. I. See Gurzan, M. I.

Golovko, L. V. See Mank, V. V.

Golub, A. A. Effect of a magnetic field on the fluctuation conductivity of lamellar superconductors (5) 138*a*.

Golub, V. Ya. See Petrin, N. V.

Golubev, V. V. See Popova, L. N.

Golyanov, V. M., Mikheeva, M. I., and Tsetlin, M. B. Oscillations of critical temps. in thin-film layered structures of semiconductor-dielectrics (9) 236*a*.

Golyshev, V. M. See Kharitonov, Yu. A.

Gomes, John M., Uchida, Kenji, and Wong, M. M. Electrolytic preparation of Ti and Zr diborides from their oxides and mineral concentrates (1) 34*f*.

Gomolka, S. See Parke, Sydney

Goncharov, L. A., Leonov, P. A., and Khorvat, A. M. Properties of Ba-doped Ge single crystals (5) 144*i*.

Goncharov, Yu. I. See Drits, V. A.

Goncharuk, L. V., and Lukashenko, G. M. Thermodynamic properties of Cr_2Te_3 (1) 27*d*.

Gondi, P. See Cavallini, A.

Gondo, Hisashi, Takechi, Hiroshi, Abe, Mitsunobu, and Namba, Kazuo Steel for enameling, P (3) 55*c*.

Gontmakher, V. E. See Chernyak, L. P.

Gonzalez de Prado, J. E., Gonzalez Tejuca, L., Pajares, J. A., and Soria, J. A. Adsorption of O by Sc oxides; Adsorption of CO_2 by Sc oxide (1) 35*c*.

Gonzalez Pena, J. M. See Aleixandre Ferrandis, Vicente

Gonzalez Pena, Maria See Aleixandre Ferrandis, Vicente

Gonzalez Tejuca, L. See Gonzalez de Prado, J. E.

Gonzalez-Caballero, F. See Bruque, J. M.

Gooch, C. H., and Tarry, H. A. Optical properties of twisted nematic liquid crystal structures with twist angles 90° (1) 42*j*.

Goodbrake, Chris J. See Blome, James C.

Goode, Alan H., and Tyrrell, M. E. Beneficiation of Alabama clays (5) 133*c*.

Goodenough, J. B. Oxide engineering (7) 189*g*.

Goodhew, P. J., and Gulley, J. E. C. Determination of alkali metals in glass by EPMA (1) 6*g*.

Goodman, C. H. L. Strained mixed cluster model for glass structure (9) 203*j*.

Goodrum, John W. Periodically and alternately accelerating and decelerating rotation rate of seed crystal, P (5) 127*j*.

Goodwin, J. F. See West, H. W. H.

Goraus, E. Decreasing the permeability of hardened cement (9) 194*g*.

Gorb, M. L. See Oleinik, G. S.

Gorbachev, V. V., Zhukovskaya, O. V., and Tsyganov, A. D. Ceramming of Li aluminosilicate glass studied by the method of positron annihilation (5) 104*i*.

Gorbacheva, M. I., and Zaionts, R. M. Moisture expansion of some crystalline and amorphous phases (1) 9*j*; Swelling in acid-resistant ceramic ware (3) 71*g*.

Gorbai, Z. V. See Yashchishin, I. N.

Gorban, A. P., Litovchenko, V. G., and Serba, A. A. Investigation of the recombination mechanisms in MIS structures by a photocapacitance method (5) 125*b*.

Gorbatyuk, V. A., Shvedov, L. V., Khaskin, L. I., and Prikhod'ko, L. I. Production and properties of cores in 2VT ferrite (3) 74*h*.

Gorbunov, L. V., Desyatnik, V. N., Raspopin, S. P., and Trifonov, K. I. Reaction of $ThCl_4$ with the alkaline-earth metal chlorides (1) 45*a*.

Gorbunov, Yu. A., Maksimov, B. A., Kharitonov, Yu. A., and Belov, N. V. Crystal structure of Sc_2GeO_5 (9) 228*d*.

Gordienko, Leonid A. See Butuzov, Vladimir P.

Gordin, V. L. See Dzampaev, Kh. S.

Gordon, Robert B. See Auten, Thomas A.

Gordon, Ronald S. See Giddings, Robert A. ; Virkar, Anil V.

Gordova, M. R. See Poluboyarinov, D. N.

Gorelov, V. P. See Volchenkova, Z. S.

Gorislavskii, V. I., Kisel, N. G., Nikiforov, L. G., and Shuvalov, V. V. Solid-phase reaction of $BaNb_2O_6$ formation (5) 145*j*.

Gorobets, L. Zh., Karmazin, V. I., Gorobets, V. I., and Krasnoper, P. T. Forsterite refractories from talc-magnesite of the Pravdinsk deposit (1) 17*h*.

Gorobets, V. I. See Gorobets, L. Zh.

Gorodova, N. V. See Myasnikov, A. A.

Gorokhova, E. I. See Volynets, F. K.

Gorrissen, Jan Polycrystalline layers of elementary substances on substrates, P (5) 128*a*.

Gorsler, H. W. Firing of superduty refractories by a novel firing system (5) 117*g*.

Goruk, W. S., Normandin, R., Vella, P. J., and Stegeman, G. I. Optical diffraction studies of sound waves in Li niobate (9) 236*c*.

Goryachev, S. B. See Alexeev, A. A.

Goryachev, Yu. M. See Murashko, N. I.

Goryachev, Yu. M., Murashko, N. I., Obolonchik, V. A., and Kovalenko, V. F. Photoconductivity of single crystals of triple chalcogenide $CdCr_2Se_4$ (9) 237*c*.

Goryainov, K. E. Effect of gas mediums on the chemical reactions during the production of silicate materials (9) 224*i*.

Gosbchitskii, B. N. See Chukalkin, Yu. G.

Gossard, A. C. See Lang, David V.

Gossie, Mijo A. Decal applying, P (9) 204*b*.

Gossink, R. G. See Vreeswijk, J. C. A.

Gostelow, Colin R., Restall, James E., and Watt, Kenneth R. Shaped glass-ceramic bodies, P (9) 206*d*.

Goto, M. See Tamura, S.

Goto, Seishi, Daimon, Masaki, Hosaka, Giko, and Kondo, Renichi Composition and morphology of hydrated tricalcium silicate (9) 194*d*.

Gottardi, V. See Locardi, B.

Gottardi, V., Raccanelli, A., Della Mea, G., and Drigo, A. V. Analysis of thin films on glass by nuclear techniques (9) 199*b*.

Gottlieb, Milton See Roland, George W. ; Isaacs, Thelma J.

Gottschalk, Juergen See Husemann, Klaus

Gottschalk, Klaus See Hellman, Wayne R.

Goublaire, B. See Poirson, G.

Gouda, George R., and Roy, Della M. Properties of hot-pressed Ca aluminate cements (5) 101*i*.

Gould, Robert E. See Weingrad, Saul

Gourlaouen, J. C. See Poirson, G.

Goursat, Paul See Brachet, Daniel

Govinda, S., and Rao, K. V. Dielectric properties of single crystals of Al_2O_3 and Al_2O_3 doped with Cr or V (1) 36*i*.

Govorkov, A. V. See Gimel'farb, F. A.

Goyal, S. K., and Cutler, Ivan B. Absorption of water in waste glass as a precursor for foam formation (7) 154*f*.

Goytisolo, Jorge A., Chi, Donald D., and Lee, Hanju Zeolite X molecular sieve bodies, P (1) 35*b*.

Grabchuk, B. L., and Kislyi, P. S. Sintering of technical B_4C (1) 20*a*.

Grabke, Hans Juergen See Kudielka, Heinz

Grabmaier, J. G., Plaettner, R. D., and Schieber, M. Suppression of constitutional supercooling in Czochralski-grown paratellurite (1) 46*g*.

Graddy, George E., Jr. See Hunter, O., Jr.

Graetz, R. Possible methods for the control of fluoride emissions and information obtained from continuous measurements of fluoride in flue gas (3) 80*i*.

Graf, Robert B. See Galasso, Francis S.

Graf, Robert E. See Deeg, Emil W. ; Young, Robert W.

Graff, Eugene A. Eu-activated Y oxysulfide, P (5) 112*g*.

Graff, Klaus, and Pieper, Heinrich Determining the carrier lifetime of a crystal, P (3) 76*g*.

Graham, H. C. See Hinze, J. W.

Graham, J. Notes on *a*-spodumene, $LiAlSi_2O_6$ (3) 90*c*.

Graham, Paul W. L., Moore, Thomas W., Jr., and Mann, Charles F. Coated glass container, P (3) 60*c*.

Graham, Roy R. Size for textile glass fibers, P (5) 114*c*.

Graham S. H. See Tricker, M. J.

Grandlic, Eugene J., and Korb, Stanley N. Clay tile pipe joint seal containing foamed unsaturated polyester resin, P (9) 207*g*.

Grankin, V. L. See Melkov, G. A.

Grankin, V. L., Melkov, G. A., and Ryabchenko, S. M. Nonlinear properties of ferrites at low temps. (9) 235*i*.

Grankovskii, I. G., Kruglitskii, N. N., Sposobnyi, V. V., and Gavrilenko, O. I. Optimization of conditions for the setting of cement-clay compositions by the method of mathematically planned experiments (1) 3*h*.

Granquist, William T. Hydrocarbon cracking utilizing laminar heavy metal aluminosilicates, P (5) 134*i*.

Grant, R. J. See Duffy, J. A.

Grantham, LeRoy F., Gehri, Dennis C., and Katz, Bruno Absorption of S oxides from flue gas, P (5) 130*j*.

Grau, A. E., and Flengas, S. N. Thermodynamic study of the PbO-Na_2O-SiO_2 system (7) 188*a*; Activities of SnO in the SnO-SiO_2 system (9) 226*f*.

Gray, J. H. Bird's-eye view of the enameling industry in Great Britain (5) 103*a*.

Gray, J. M., Pionke, J., and Johnson, E. Apparatus for scoring sheet material, P (1) 13*e*.

Gray, Richard A., Isham, Allan B., and Rolston, John A. Covered tubular package of glass roving, P (3) 60*g*.

Gray, Thomas H. Glass-metal sealing alloy, P (3) 104*a*; Fine-grained metals for glass-to-metal seals, P (7) 154*b*.

Gray, Thomas J. See Pryor, Michael J.

Gray, Thomas J., Castelliz, K. M., Routil, R. J., and Rockwell, M. Sr-based electronic ceramics for high-temp. applications (7) 172*c*.

Grba, V. See Soljic, Z.

Grebenkina, V. G. See Sorokin, V. N.

Greben'kova, V. I. See Petrova, V. Z.

Grebenshchikov, R. G., Shitova, V. I., and Dmitrieva, L. Yu. Solid solutions in the system Ca_2SiO_4-Sr_2GeO_4 (9) 239*g*.

Grebenyuk, A. A. See Karaulov, A. G.

Grebenyuk, D. S. See Laptev, V. I.

Grebenyuk, N. P. See Dzhigiris, D. D.

Grebenyuk, Yu. L. See Kvyatkovskaya, K. K.

Grebneva, V. P. See Butt, Yu. M.

Grebtsov, B. M. See Troitskii, V. N.

Grechishkin, V. S. See Sidorov, T. A.

Grechushnikov, B. N. See Meshcheryakov, V. F. ; Veremeichik, T. F.

Greco, Edgar J. See Wylot, James M.

Green, Charles F. Glassmelting furnace, P (3) 61*h*.

Green, Geoffrey W. See Bradsley, William

Green, Mino, and Richman, D. Solid state electrochromic cell—the $RbAg_4I_5$/WO_3 system (3) 75*d*.

Greenberg, A. A. Molding method and powder, P (9) 216*b*.

Greenberg, Charles B. Q-switching device for glass lasers, P (5) 113*i*.

Greenberg, Herbert J. Measuring molten glass temps. (1) 9*d*.

Greene, Charles H. Fining of glass (1) 8*h*.

Greene, J. E., Wickersham, C. E., and Zilko, J. L. Epitaxial growth of $In_{1-x}Ga_xSb$ thin films by multitarget rf sputtering (9) 217*c*.

Greenhalgh, Frank G. See Dent, Kenneth H.

Greiner, J. D. See Bailey, D. M.

Greive, Aloys Spinning apparatus for glass-fiber yarn, P (7) 163*a*.

Grenawalt, John J. See Gardner, Larry E.

Grenier, Jean-Claude See Mahama, Issoufou

Greskovich, C. See Stubican, V. S.

Greskovich, C., and Chernoch, J. P. Polycrystalline ceramic lasers (7) 159*c*.

Greskovich, C., and Palmer, G. G. Composition limits and magnetic properties of sintered $Y_{2.66}Gd_{0.34}Fe_x$-$Al_{0.677}Mn_{0.09}O_{12}$ garnets (7) 180*b*.

Greskovich, C., and Rosolowski, J. H. Sintering of covalent solids (9) 239*b*.

Greskovich, Charles D. See Gigliotti, Michael F. X., Jr.

Greskovich, Charles D., and Roth, Walter L. Polycrystalline ceramic lasers, P (1) 29*d*.

Gress, R. I. See Leshchenko, N. P.

Gribanova, N. K. See Chelishchev, N. F.

Gribko, V. F. See Syrkin, Ya. M.

Gribko, V. F., Satarin, Vladimir I., Kholodnyi, Alexei G., and Shchetkina, T. Yu. Hydraulic activity of glasses of the melilite series (1) 8*g*.

Gribovskii, M. O., and Rumyantsev, B. M. Electric heating during the manufacture of mineral wool acoustic plates (5) 117*b*.

Grienke, W. See Wullkopf, H.

Grieser, Frank, and Klein, Rainer Calibrating moisture content measuring instruments, P (9) 224*b*.

Grietens, Joannes Glazing unit, P (1) 14*c*.

Griffiths, C. H., and Eastwood, H. Keith Influence of stoichiometry on the metal-semiconductor transition in VO_2 (9) 233*h*.

Griffiths, David H. See Maaghul, John

Grigg, A. See Brungs, Michael

Grigor'ev, A. I. See Markelov, B. G.

Grigor'ev, I. V. See Kabakova, I. I. ; Pirogov, A. A.

Grigor'ev, I. V., Kravchenko, I. P., Sturman, V. K., and Korshunov, V. S. Refractory filters for foundry production (3) 67*h*.

Grim, Ralph E. Mineral structures and the properties of clays (1) 34*i*.

Grimshaw, Rex W., and Peacey, John G. Al_2O_3 whiskers, P (7) 167*a*.

Grindstaff, Lloyd I. See Whittaker, Mack P.

Griner, I. K., and Panfilova, T. V. Advantages of double air pass through push-type cooler (5) 97*f*.

Grishaev, I. A. See Bochek, G. L.

Grishina, N. I. See Berul, S. I.

Griss, Peter See Heimke, Guenther

Griswold, Douglas A. See Wilcox, Harold D.

Gritsenko, V. A. Conductance of amorphous Ge nitride films in high electric fields (1) 24*j*.

Grizik, A. A. See Daunov, M. I. ; Kuz'micheva, G. M.

Grodzian, D. J. M. See Lin, I. J.

Grodzins, L. See Horowitz, P.

Groessinger, R., and Steiner, W. Magnetic investigations on $Dy(Fe_xAl_{1-x})_2$ Laves phase compounds (3) 89*b*.

Gromozova, I. K. See Bogdanova, I. V.

Gronkowski, J. See Lefeld-Sosnowska, M.

Gronlund, Martin, and Gude, Klaus E. Plant for producing cement clinker from cement slurry, P (3) 54*f*; Control of cracks by interfaces in composites (3) 54*h*.

Gropyanov, V. M., and Abbakumov, V. G. Sintering kinetics in nonisothermal conditions (3) 91*e*.

Grosheva, V. M. See Karpinos, D. M.

Grosheva, V. M., and Mironov, I. M. Solubility of synthetic mullite in HF (1) 20*c*.

Grossi, Eugene A. See Brissette, Leo A.

Grosskopf, Bernd See Eschner, Axel

Grossman, David G. Glass-ceramic articles with oriented mica crystals, P (1) 14*b*.

Grossman, Leonard N., and Packard, Douglas R. Nuclear fuel element containing strips of an alloyed Zr, Ti, and Ni getter material, P (1) 30*i*.

Groth, Rolf Heat-reflecting glass sheets, P (1) 14*d*.

Grove, Carl A. See Ansell, George S.

Grover, V. N. Grindability and mill control (1) 32*b*.

Groves, Archie L. Controlled feeding of batch in glassmaking process, P (1) 14*a*.

Grow, R. T. See Johnson, Gerald K.

Groznov, I. N., Petrov, V. M., and Venevtsev, Yu. N. Thermal ionic relaxation and formation of vacancies in $BaTiO_3$ solid solutions (9) 241*d*.

Grubb, Everett F., Hagedorn, Erwin C., and Monks, Joseph R. Glass compositions, P (3) 61*c*.

Gruber, Paul S. Saving energy in porcelain enameling (7) 154*g*.

Grudemo, Ake Role of pore size and shape in strength-structure relations of cement pastes (7) 152*f*; Strength vs structure in cement pastes (7) 153*a*.

Gruebl, Peter Influence of size and distribution of lightweight aggregates on compressive strength (7) 151*h*.

Gruehn, R. See Sturm, J.

Gruen, D. M. See Chatelet, J.

Gruenberg, J. See Bar-Chaim, N.

Gruhl, Siegfried See Weber, Horst

Grum-Grzhimailo, O. S. Acid resistance of mullite (1) 16*e*. See Kvyatkovskaya, K. K.

Grum-Grzhimailo, O. S., and Kvyatkovskaya, K. K. Use of electron microprobe for studying the properties of ceramic ware (1) 33*h*.

Grunin, V. S. See Belyaninov, Yu. N.

Grushevaya, T. F. See Karaulov, A. G.

Grushevskii, Ya. L. See Gogotsi, G. A.

Gruver, Robert M. See Kirchner, Henry P.

Gruver, Robert M., and Kirchner, Henry P. Effect of leached surface layers on impact damage and remaining strength of Si_3N_4 (3) 86*c*.

Gruver, Robert M., Sotter, W. A., and Kirchner, Henry P. Variation of fracture stress with flaw character in 96% Al_2O_3 (5) 121*h*.

Grylitski, M. See Tsven, A.

Gryzina, L. N., Borodin, A. P., and Tret'yakov, Yu. D. Condition for synthesis and sintering of Na polyaluminate of variable composition (5) 124*h*.

Grzhegorzhevskii, O. A., and Pisarev, R. V. Magneto-optical studies on the magnetization compensation point in Gd Fe garnet (1) 42*a*.

Grzymek, Jerzy, Roszczynialski, Wojciech, and Gustaw, Krystyna Diatomites occurring in Poland as pozzolanic additions to structural binding materials (7) 150*h*.

Guaker, R. See Bhat, C. V.

Guaker, R., Rafn, I., and Urnes, Sigmund X-ray diffraction studies of glasses in the systems K_2O-MgO-SiO_2 and Cs_2O-MgO-SiO_2 (1) 13*e*.

Gubenko, A. Ya. Effect of growth conditions and level of alloying on the distribution coeff. (5) 137*g*.

Gubenko, A. Ya., Pogorelov, B. N., Al'tshuler, V. M., and Kononov, G. I. Behavior of B and Ga in highly doped Si (5) 135*c*.

Gubko, I. T. See Bulakh, V. L. ; Tsigler, V. D.

Gude, Klaus E. See Gronlund, Martin

Gudilina, A. I. See Alekseenko, L. S.

Gudz, L. F. See Pilipchatin, A. D.

Guenther, Arthur H. See Glass, Alexander J.

Guenthner, Franz Molding-apparatus, P (7) 162*c*.

Guerra, Salvatore See Boller, Thomas E.

Guerrieri, G. Automation in selection of single fired tile (9) 214*d*.

Guerrieri, Salvatore A. Removal of oxides of S from gases, P (5) 130*g*.

Guers, Karl Monocrystals, P (1) 29*a*.

Gugel, E. See Wruss, Werner; Leimer, Gerhard

Gugel, E., Petzenhauser, I., and Fickel, A. X-ray investigation of the system Si_3N_4-Al_2O_3 (7) 189*d*.

Gugel, E., and Schuster, P. Ceramic bodies based on Al titanate (9) 208*d*.

Guha, J. P. See Kolar, D.

Guha, S. K., and Sen, Sudhir X-ray and DTA of some Indian bentonites (1) 48*a*.

Guidry, Mark R., Jr. See Cunningham, James A.

Guigue, O. See Siffert, B.

Guile, Donald L., and Smith, Robert K. Bonded fused grain basic refractory and batch therefor, P (5) 121*b*; Size-graded ternary batch for bonded basic refractory shapes, P (7) 168*h*.

Guillemet, C. Advances in the science of fracture of glass (5) 104*g*.

Guinier, A. See Regourd, M.

Guinzberg, A. V., Kochev, K. D., Kusminov, Yu. S., and Volk, T. R. Photoferroelectric mechanism of the effect of "optical damage" in Sr Ba niobate crystals (5) 143*j*.

Guisinger, John E., and Maserjian, Joseph Measurement of trap density in dielectric film (5) 125*f*.

Guittard, Maurice See Goldstein, Leon

Gulaev, V. M. See Poluboyarinov, D. N.

Gulai, O. S. See Dolin, A. I.

Gulas, Hans Juergen, and Haberl, Freimuth Simulated service slagging test for electric arc furnace refractories (5) 120*j*.

Gulati, Prithvi Rai See Hennicke, Hans Walter

Gul'bis, F. See Lipilin, A. S.

Gulevatyi, S. I. Agloporite from acid clay material (5) 97*g*.

Gul'ko, N. V. See Alekseenko, L. S. ; Degtyareva, E. V. ; Orlova, I. G. ; Pisareva, N. V.

Gulley, J. E. C. See Goodhew, P. J.

Gulotta, Joseph A. See Cerutti, Richard L.

Gulotta, Joseph A., Knavish, Leonard A., and Sensi, John E. Apparatus and method for controlling the flatness of newly formed continuous sheet of flat glass, P (7) 161*b*.

Guloyan, Yu. A., and Katkova, K. S. Evaluation of the light-protective and technological properties of colored bottle glass (1) 8*d*.

Gulyaev, G. I. See Drobich, O. P.

Gulyanitskaya, Z. F. See Chizhikov, D. M.

Gunawardane, R. P., and Glasser, F. P. Studies in the system Li_2O-BaO-SiO_2 (3) 92*g*; System K_2O-BaO-SiO_2 (7) 187*g*.

Gundarina, Z. I. See Popova, L. N.

Gunkel, Alfred A., and Weber, Martin E. Flow phenomena in stirred tanks: I, Impeller stream; III, Bulk of the tank (3) 78*d*.

Guoga, V., Kabaev, M., Kisina, R., and Nikolaenko, A. Fabrication of SiO_2 films on high-resistance Ge substrates by thermal decomposition of tetraethoxysilane in vacuum (5) 125*h*.

Gupta, D. C. See Tripathi, S. R.

Gupta, Kedar P. See Wang, F. F. Y.

Gupta, P. K. See Cooper, A. R.; Srinivasan, G. R.; Laberge, N. L.

Gupta, T. K. Crack healing and strengthening of thermally shocked Al_2O_3 (7) 180*g*.

Gural'nik, P. B., Berezina, G. M., Bol'shakov, A. G., and Petrova, G. V. Rammed C [lining] mass (3) 67*i*.

Gurevich, A. G., and Anisimov, A. N. Intrinsic spin wave relaxation processes in YIG (9) 233*d*.

Gurevich, V. L. See Gal'perin, Yu. M.

Gurin, V. N., Dergunova, V. S., Popov, V. E., and Lyukshin, E. N. Action of metallic melts on pyrolytic graphite crucibles (1) 16*f*.

Gurkovskii, E. V., Leko, V. K., and Stepanova, I. A. Absorption spectra of quartz glasses (1) 5*j*.

Gurkovskii, E. V., Levin, I. M., and Stepanova, N. V. Fusion of quartz in a H-O flame (1) 8*a*.

Gurney, C. See Mai, Y. W.

Gurov, S. V. See Aivazov, M. I.

Gurta, Daniel J. Recovering glass cullet, P (3) 62*c*.

Gurubi, Laszlo Testing the corrosion resistance of refractory shapes to glass melts (5) 121*c*.

Gur'yanov, P. E. See Semkina, N. V.

Gurzan, M. I., Golovei, M. I., Bodnar, M. P., and Chepur, D. V. Influence of addition of certain impurities on electrical conductivity of proustite and pyrargyrite single crystals (9) 233*d*.

Guseinov, E. A. See Pyl'nik, E. V.

Gusev, A. I. See Gol'dshtein, L. Ya.

Gusev, A. P. See Chernina, L. L.

Guseva, I. N. See Ginzburg, V. M.

Gustaw, Krystyna Intensification of grinding process of cement, limestone, and burnt lime with the aid of surface-active substances (7) 151*j*. See Grzymek, Jerzy

Gutenev, M. S., Viktorovskii, I. V., Kiseleva, E. M., and Baldakov, L. A. Dielectric and magnetic properties of As-Ge-Se glasses (3) 56*h*.

Guthrie, Bernard M. Alkali-resistant glass, P (1) 13*j*.

Gutmann, R. J. See Staiger, E. H.

Gutovskii, I. G. See Makarov, V. A.

Gutowski, Ryszard, Maslankiewicz, Wojciech, and Rybicki, Ka-

zimierz Properties of corundum ceramic-Cu connections: I, Connection resistance under tension (1) 27*b*.
Guttmann, J., Krumpholz, O., and Pfeiffer, E. Optical fiber-strip line coupler (1) 10*c*.
Gutzow, Ivan, and Avramov, I. Mechanism of formation of amorphous condensates from the vapor phase: I, General theory (1) 42*c*.
Guven, Necip Evaluation of bending effects on diffraction intensities (5) 139*f*.
Guven, Necip, and Pease, R. W. Electron-optical investigations on montmorillonites: II, Morphological variations in the intermediate members of montmorillonite-beidellite series (5) 138*i*.
Guyader, Jean See Gaude, Jean
Guyader, R. See Dutruel, F.
Guzhavin, E. O. See Kononko, V. P.
Guzman, I. Ya. See Karas, G. E.
Guzman, I. Ya., Fraifel'd, M. S., and Karklit, A. K. Technological parameters during the manufacture and service of SiC products (5) 121*a*.
Guzman, I. Ya., Kosokina, E. V., and Tumakova, E. I. Thermal expansion and thermal stability of oxide refractories bound by Si nitrides (1) 20*g*.
Gvozdover, R. S. See Shuvalov, L. A.
Gyarmati, Erno, and Nickel, Hubertus Fuel and fertile elements for nuclear-reactor cores, P (1) 30*h*.
Gyulai, J. See Balazs, A.

Haarhoff, Frank E. Air pollution drive behind schedule (5) 147*a*.
Habashi, Fathi, and Dugdale, Raymond Action of SO_3 on chalopyrite (7) 179*d*.
Habata, Hidetsugu See Kimura, Isao
Haber, Jerzy See Deren, Jerzy
Haber, Jerzy, Kosinski, Krzysztof, and Rusiecka, Magdalena Influence of doping with Li on the interaction of ZnO surface with O (7) 182*h*.
Haberey, F., and Lehmke, J. Electrical complex conductivity of $Eu_{0.99}Gd_{0.01}S$,$Eu_{0.99}Gd_{0.01}Se$, and $Eu_{0.95}Gd_{0.05}Se$ in region of Curie temp. (3) 86*j*.
Haberey, Florian, Kockel, Andreas, and Kuncl, Klaus Polymorphism of $BaFe_2O_4$ (3) 90*f*.
Haberko, Krzysztof See Haberko, Maria ; Pampuch, Roman
Haberko, Maria Effect of the glaze on the mechanical properties of electrotechnical porcelain (7) 168*j*.
Haberko, Maria, and Haberko, Krzysztof Effect of glaze on strength of high-tension porcelain (7) 169*a*.
Haberl, Freimuth See Gulas, Hans Juergen
Habermann, H. See Kieffer, Richard
Hadeishi, T. See Zak, B. D.
Hadeishi, Tetsuo, and McLaughlin, R. D. Zeeman atomic absorption determination of Pb with a dual chamber furnace (9) 224*a*.
Hadwiger, H. Enamel slip (3) 54*j*.
Haehner, Carl L., and Tarpley, John L. Apparatus for measuring static coeff. of friction under compressive loads (5) 130*i*.
Haendle, F. New approach to the preparation of ceramic bodies (3) 78*h*.
Haensel, Dietrich See Jarchow, Friedrich G. K.
Haese, U., Scheffler, P., and Fasbender, H. Grindability testing and tube mill design for cement raw materials (5) 99*h*.
Hafner, Erich, and Vig, John R. Quartz crystal resonators, P (3) 77*c*.
Hagedorn, Erwin C. See Grubb, Everett F.
Hagedorn, F. B. See Smith, D. H.
Hagedorn, Floyd T. See Revells, Robert G.
Hagemann, L. See Routschka, G.
Hagemann, Ludwig, Lecrivain, Lucien, Majdic, Aleksander, and Provost, G. Creep in dense refractory fireclay products (7) 164*a*.
Hagemark, K. I. See Li, P. W.
Hagenmuller, Paul See Bayard, Michel ; Doumerc, Jean-Pierre
Haggerty, William H., and Bolen, Gerhard N. Sizing composition and glass fibers treated therewith, P (5) 114*d*.
Haggren, Erik Gyratory crusher, P (5) 130*c*.
Haginaka, Tetuo See Yokoi, Hideharu
Hagio, Tsuyoshi See Umebayashi, Seiki
Hagiwara, Hisao, and Oyamada, Ryozo Cation-oxygen ion interaction parameter in glassy PbO-SiO_2 system (5) 104*f*; Dielectric constant, ir absorption, and Raman effect of glassy Fe_2O_3-PbO-SiO_2 system (9) 229*e*.
Hagston, W. E. See Speed, A. R.
Hagy, Henry E., and Shirkey, W. D. Determining absolute thermal expansion of TiO_2-SiO_2 glasses—a refined ultrasonic method (3) 56*g*.
Hahn, Guenther See Westerhuis, Karl
Hahn, Karl F. Lightweight glass container development: I (5) 107*f*; Lightweight glass container development: III, IV (9) 201*f*.
Hahn, W. C. Jr. See Notis, M. R.
Hahn, William P., Hite, Edward L., Shisler, Donald E., and Simmers, Charles D. Apparatus for making mineral fiber blankets, P (7) 175*e*.
Haines, Richard M. See Wong, Robert
Hair, Michael L. Hydroxyl groups on SiO_2 surface (7) 157*f*.
Hait, Gerald F., and Nufer, Robert W. Elimination of dimensional changes in ceramic green sheets, P (9) 219*g*.
Hajduk, Thaddeus J. See Barber, Howard H.
Hakim, E. B., and Shappirio, J. R. Failure mechanisms in gold-metalized sealed junction devices (3) 73*h*.
Hakki, Basil W. See Paoli, Thomas L.
Hakki, Basil W., and Paoli, Thomas L. Cw degradation at 300°K of GaAs double-heterostructure junction lasers: II, Electronic gain (7) 170*c*.
Halberschmidt, Friedrich, Paulus, Helmut, and Felten, Karl J. Glazing, P (9) 205*h*.
Hale, Thomas E. Coated cemented carbide product, P (3) 69*g*.
Halgeri, A. B. See Walvekar, S. P.
Halko, J. E. See Rado, T. A.
Hall, C. R. See Bowen, D. K.
Hall, Edward C. Apparatus for treating sheet material, P (3) 60*a*.
Hall, Harold R., Herrington, Richard A., Huizinga, Martin, and Rahrig, Donald D. Method and apparatus for bending and tempering thin glass sheets, P (7) 162*h*.
Hall, Howard T. Polycrystalline diamond composites, P (3) 70*d*.
Hall, James E. See Purslow, J. H.
Hall, Peter L. See Angel, B. R.
Halle, Radovan Application of thermal methods in cement chemistry (9) 194*a*.
Haller, Wolfgang K. See Sanders, David M.
Hallett, J. B. See Harvey, P. J.
Halpern, T. H. See Shin, S. H.
Hamamoto, Fujio, Kawamura, Junichi, and Isomoto, Masaki Ladle lined by sand slinger method (7) 165*i*.
Hamano, Kenya See Asaga, Kiyoshi ; Kimura, Kunio
Hamano, Kenya, and Akiyama, Yutaka Effects of B oxide on sintering of MgO (7) 181*d*.
Hamano, Kenya, and Asaga, Kiyoshi Preparation of spherical alumina particles by means of plasma flame (1) 44*i*.
Hamano, Yoshiteru Method for bonding ceramics with metal, P (1) 28*i*.
Hamdy, S., and Radczewski, O. E. Structure and formation of lath-shaped illite (5) 145*e*.
Hamer, F. M., Lowe, D., and McKenzie, H. W. Cutting of glass, P (5) 112*b*.
Hamilton, Harold E., and Oelke, Waldemar W. Method and apparatus for bending glass sheets, P (9) 205*e*.
Hamilton, Joseph R. Continuous motion glass molding machine with gob delivery means, P (1) 13*j*.
Hammel, Joseph J., and Allersma, Ties Thermally stable and crush-resistant microporous glass catalyst supports, P (3) 62*j*.
Hammer, Jacob M. See Duffy, Michael T.
Hammer, Josef See Beyersdorfer, Kurt
Hammer, R. See Chou, N. J.
Hammerel, James T. Sheet glass supporting rack, P (5) 114*c*.
Hamon, Christian See Lang, Jean
Hampshire, M. J. See Parkes, J.
Han, Ki Sung Effect of the structural state of SiO_2 on the pozzolanic reactivity (1) 2*e*.
Han, Sang Mok See Lee, Chong Keun
Hanak, Joseph J., and Stevenson, David M. Forming a thin piezoelectric body metallically bonded to a propagation medium crystal, P (1) 28*c*.
Hancock, John D., and Hepworth, Matthew A. Sintered zirconia bodies, P (5) 122*j*.
Handerek, J. See Ujma, Z.
Handke, Hans Injection molding as a shaping method for fine ceramic articles (5) 130*a*.
Handke, Miroslaw See Goerlich, Edward
Haneda, Hazime See Ohtsuka, Atsushi
Hanfmann, Alexander M. Depositing material on a substrate using a shield, P (1) 28*g*.
Hanke, E. W. Cooling in the grinding circuit of cement mills (3) 50*e*.
Hanna, F. F. See Abd-el-nour, K. N.
Hannink, R. H. See Garvie, R. C.
Hannon, J. J. See Fehniger, M. J.
Hansen, Charles K. See Yu, Peter H.
Hansen, Dan S. Method and apparatus for firing pulverulent materials, P (5) 130*d*.
Hansen, J. P. See Cobble, J. R.
Hansen, P. Anisotropy and magnetostriction of Ga-substituted YIG (9) 226*h*.
Hansen, P., Schuldt, J., Hoekstra, B., and Damen, J. P. M. Anisotropy and magnetostriction of Ru-substituted Li ferrite and Ni ferrite (9) 226*h*.
Hanson, Robert F. See Keller, W. D.
Hantsche, H. Energy-microdispersive X-ray microanalysis by SEM modern method for the qualitative examination of surface (3) 80*d*.
Hara, Akio, and Yazu, Shuji Surface-coated cemented carbide articles, P (5) 122*b*.
Hara, Hiroshi See Kaneki, Noriaki
Hara, Naomichi, and Inoue, Norihiro Formation of 14 A tobermorite from SiO_2 glass (7) 157*c*.
Hara, Shiro See Tomizawa, Toshiaki
Harada, H. See Sugaki, Asahiko
Harada, Shunichi, and Abe, Hideo Pretreating process for vitreous enameling, P (5) 104*c*.
Harada, Yoshiro, and Crandall, William B. Converting chrysotile asbestos, P (3) 83*a*.
Hardee, Kenneth L., and Bard, Allen J. Semiconductor electrodes: I, Chemical vapor deposition and application of polycrystalline *n*-type TiO_2 electrodes to the photosensitized electrolysis of water (1) 27*h*.
Hardiman, B., Zeyfang, R., and Reeves, C. Direct observation of ferroelectric domains in modified PZT ceramics by TEM (7) 180*h*.
Hardwick, James London Brick rebuilding bears fruit (9) 207*e*.
Harel, A. See Brenner, I. B.
Hares, George B., and Morgan, David W. Ba flint ophthalmic glasses, P (1) 13*g*.
Harigaya, Hiroshi, Sakamoto, Motoyoshi, and Kanal, Masao Complementary MIS-type semiconductor devices, P (3) 76*e*.
Harms, H. See Papp, A.
Harms, H., Papp, A., and Kempter, K. Magneto-optical properties of index-gradient optical fibers (7) 158*g*.
Harnsberger, Bobby G. Permeable cement composition, P (7) 153*b*.
Harper, G. Bruce Reusable glass-bound pH indicators (1) 11*f*.
Harper, H., and McMillan, P. W. Structure and properties of V_2O_5-P_2O_5 glasses (1) 11*h*.
Harrell, William C., and Foster, Homer R. Method and apparatus for regulating the temp. of a glass sheet float tank, P (5) 113*j*.
Harrington, Roy V., and Beal, Donald F. Cordierite glass-ceramic having nucleating agent and increased percent cordierite crystallinity, P (7) 161*h*.
Harris, B. See Fuwa, M.
Harris, Berlin C., Jr. See Kucsma, Michael E.
Harris, Cyril M. Dictionary of Architecture and Construction, B (3) 94*e*.
Harris, Dwight L. Purified $CaCO_3$, P (3) 83*g*.
Harris, E. F., and Crawford, J. H., Jr. Thermal decay of the V-band in MgO quenched from high temp. (9) 241*b*.
Harris, J. Donald See Farrington, Grant M., Jr.
Harris, J. H. See Dalgoutte, D. G.
Harris, James O., Jr. See Cutchen, J. Thomas
Harrison, Peter G. See Jones, Stanley Peter
Harrison, Peter J. Toughening glass, P (1) 15*g*.
Hart, Frederick H., and McFegan, William Glass articles, P (1) 14*f*.
Hart, LeRoy D. See Ballain, Marlyn D.
Hart, Lewis F., and Buttle, Robert L. Black ceramic body, P (3) 72*d*.
Hart, Raymond K. Improved Einzel lenses (9) 201*b*.
Harthoorn, R. See Mirani, H. V. M.
Hartley, Kenneth, and McIntosh, Arthur E. Sieves, P (7) 174*e*.
Hartman, R. L. See Petroff, P.
Hartmann, Jochen Rolling out a bar-shaped premolding of ceramic material to form a plate, P (5) 130*g*.
Harvey, J. E. See Platt, Ben C.
Harvey, J. E., and Wolfe, William L. Refractive index of Irtran 6 (hot-pressed CdTe) as a function of wavelength and temp. (5) 144*h*.
Harvey, J. W. Decalcomanias, P (1) 24*b*.
Harvey, P. J., and Hallett, J. B. Thermoluminescence and fluorescence in ThO_2 (7) 188*d*.
Haschke, John M. Preparation, phase equilibria, and crystal chemistry of Sm bromides (9) 237*i*.
Hase, Teizo See Suzuki, Hiroshige
Hase, Teizo, and Suzuki, Hiroshige Initial siliconizing process on the basal plane surface of graphite crystal (5) 128*i*.
Hasegawa, R. See Chien, C. L.
Hasegawa, Toshio See Suzuki, Hideyuki
Hasegawa, Yasushi See Ooba, Shigeki
Hasegawa, Yasushi, and Tagai, Hideo Chalcogenide glass having Si-containing layer, P (1) 13*i*.
Haseltine, B. A. Design of laterally loaded wall panels (5) 114*e*. See Korff, J. O. A.; West, H. W. H.
Hashiba, Minoru See Miyamoto, Masafumi ; Yoshida, Kazunori
Hashiguchi, Yoshitaka See Suzuki, Narishige
Hashimoto, Hidehisa See Tomizawa, Toshiaki
Hashimoto, Koshiro See Shimizu, Tadao
Hashizume, Genzo See Tanaka, Minoru
Haskal, H. M. See Goldner, R. B.
Hasler, R., and Voellmin, K. Present position of bed-blending technology in the cement industry (5) 101*e*.
Hassan, H. W. See Arsenev, P. A.
Hassan, Mehdi See Muhammad, Fazal
Hasselman, D. P. H. See Ganguly, B. K. ; Larson, D. R. ; Matta, J. E. ; Siebeneck, H. J. ; Uchno, J. J.
Hasselman, D. P. H., Chen, E. P., Ammann, C. L., and Doherty, J. E. Failure prediction of the thermal fatigue of Si_3N_4 (3) 87*c*.
Hasselman, D. P. H., Kenney, G. B., and McKinney, Karl R. Strain-rate-dependent effect of specimen vol on the strength of brittle materials (1) 11*j*.
Hassler, A. Ceramic kiln trolleys, P (7) 177*i*.
Hasson, V. See Koen, J. G.
Hasted, J. B. See Shahidi, M.
Hastings, I. J., and Rose, D. H. Extraction of precipitates associated with intergranular fission gas bubbles in irradiated UO_2 (5) 128*e*.
Hatano, Shogo See Kato, Shuzo
Hatch, Robert A. See Close, James R.
Hatfori, Takeski See Iwamoto, Nobuya
Hatibarua, J. See Bora, M. N.
Hatta, Gohtaro See Takahashi, Kentaro
Hatta, Hisao See Enomoto, Goro
Hattanda, Takatsugu See Uemura, Chikao
Hattori, Ken, Takemura, Eiji, and Shibata, Hidetoshi Present service state of refractories for continuous casting at Oita Works (7) 165*g*.
Hattori, Makoto Heats of immersion of Na_2O-B_2O_3 glasses in butylamine-cyclohexane solution (5) 107*e*. See Minami, Tsutomu
Haubol, S. See Eibisch, R.
Hauck, H., and Lommel, H. Corrosive undermining of enam-

el layers on light metal alloys in Sb(III) chloride solution (1) 4*e*.
Hauser, J. R. See Ajmera, As. P. K.
Hausner, Robert Elimination of background variations caused by photoelectrons in X-ray fluorescence analysis (5) 131*h*.
Hautojarvi, P., Lehmusoksa, I., Komppa, V., and Pajanne, E. Crystallization of Li_2O-SiO_2 glass studied by positron annihilation (3) 56*a*.
Havranek, Peter H. See Ivarsson, Paul L.
Hawrylak, H., and Musial, W. Specific resistance in mechanical excavation of clay rocks (1) 34*c*.
Hawrylo, Frank Z., and Kressel, Henry Metalized device, P (7) 173*b*.
Hawthorne, F. C., and Ferguson, R. B. Anhydrous sulfates; II. Refinement of the crystal structure of anhydrite (3) 84*f*; Refinement of the crystal structure of cryolite (3) 91*i*.
Hawthorne, Peter F. Protection of turbine casings, P (1) 21*j*.
Hayakawa, Issei, and Yanagida, Hiroaki Initial sintering of Bi_2O_3 powder compacts (5) 10*c*.
Hayakawa, Shigeru See Kasahara, Yukio ; Matsuo, Yoshihiro ; Mikoda, Masaaki ; Mitsuyu, T.
Hayakawa, Y., and Oda, N. Energy distribution of thermally stimulated exoelectrons from LiF powder (5) 139*b*.
Hayami, R. See Terai, R. ; Ueno, Tsutomu
Hayano, Ichiro See Kawasaki, Shigetake
Hayashi, Hideo See Kubo, Kazuhiko
Hayashi, Hiroshi See Nakamura, Senichi
Hayashi, Josaburo See Yajima, Seishi
Hayashi, Koya, and Kato, Masanori Polytypes of Cu_3TiO_4 and their formation reactions (9) 237*j*.
Hayashi, Kunio, Fukui, Masao, and Uei, Isao Application of Ca-aluminosilicate ceramics as low-loss dielectrics: I, Precipitated crystals from glasses and their compositional ranges in the system CaO-Al_2O_3-SiO_2 (1) 35*b*; Thermal conductivity measurement of high conductivity refractories by the hot wire method (3) 68*f*.
Hayashi, Takeshi Effects of pores on wear of refractories (3) 65*c*.
Hayes, Douglas R., and Phipps, Charles M. Joining of multisection ceramic molds, P (5) 122*c*.
Hayford, John S. See Sherif, Fawzy G.
Haynes, Harold L. See Morrison, Albert R.
Hazen, Robert M. Effects of temp. and pressure on the cell dimension and X-ray temp. factors of periclase (7) 181*h*.
Head, James L. Cellular cement, P (5) 102*e*.
Heal, Thomas J. See Watson, Ronald H.
Hearing, R. See Tuck, B.
Hearn, Ralph E., and McMillen, Clarence Coating glass sheets on both surfaces, P (9) 204*g*.
Heasell, E. L. See Korwin-Pawlowski, M. L. ; Natarajan, K.
Heberlein, Klaus Powder electrostatic methods (7) 154*d*.
Hebert, Jacques J. See Ward, Truman L.
Hebert, Virgil Pollution monitoring doesn't have to be costly (9) 223*j*.
Hecht, Alfred Electroceramics, B (3) 94*f*.
Hecker, R. See Roehrig, H. D.
Heckert, Werner Evaluation of technological experiments by mathematical analysis of random samples (1) 32*j*.
Heckl, Herwig Thin-layer mesa-type semiconductor device, P (1) 29*a*.
Heckroodt, R. O. See Koen, J. G.
Hedden, Jerry C. Tire cord containing glass fibers sized with a starch-based size, P (7) 163*d*.
Hedelin, Lars Grinding wheel for forming a facet on the periphery of an eyeglass lens, P (3) 49*e*.
Hedges, Robert E. M. Moessbauer spectroscopy of Chinese glazed ceramics (9) 193*f*.
Hedin, Rune Strength and structure of mortar with mixtures of hydraulic compounds (7) 152*j*.
Heegn, Hanspeter See Husemann, Klaus; Bernhardt, C.
Hees, Bruno, and Hoffmann, Hans Steel treatment process, P (9) 198*g*.
Hegedus, L. Louis Temp. excursions in catalytic monoliths (3) 81*h*.
Hegenbarth, E. See Franke, V.
Hegyi-Pako, Julia Qualification study of the Csoznyateto clay deposit (3) 52*g*.
Held, Nancy See Smith, Geraldine
Heide, Helmut, Hoffmann, Ulrich, Broetz, Guenther, and Poeschel, Eva Implantable porous ceramic bone substitution, bone connection, or prosthesis anchoring materials, P (1) 24*d*.
Heidenreich, Erich See Doenitz, Fritz-Dieter
Heidenreich, Erich, Doenitz, Fritz-Dieter, Ehrt, Roland, and Vogel, Werner Controlled crystallization in glass: I, Effect of F on phase separation and crystallization in an MgO-Al_2O_3-SiO_2 base glass (1) 6*f*.
Heidenreich, Erich, Doenitz, Fritz-Dieter, and Vogel, Werner Controlled crystallization in glass: IV, Methods of optimizing heat-treatment program for controlled crystallization of glasses (1) 6*g*.
Heimke, Guenther, Griss, Peter, and vonAndrian-Werburg, Hanns Artificial joint prosthesis using Al_2O_3 material, P (5) 124*f*.
Heinemann, Otto Process and apparatus for cooling fired or sintered material, P (5) 130*f*.
Heins, Conrad F. See Forler, C. Richard
Heinsoo, Edgar Glass production quality control (1) 8*b*.
Heinz, Gerd See Koch, Klaus
Heinze, Gerhard, Schoen, Manfred, and Schwochow, Friedrich Crystallization of a fiber while stretching, P (1) 14*a*.
Heiskanen, K. Unit mill as the basis for cement mill design (7) 153*f*.
Heithoff, Robert B. Glass batch log control device, P (1) 14*g*.
Heitmann, Walter Attenuation measurements in glasses for optical communications—an immersion method (5) 104*a*; Attenuation measurement in low-loss optical glass by polarized radiation (5) 104*i*.
Heitzenrater, R. F. See Binkowski, N. J.
Heitzer, Xaver, and Bourggraff, Robert Method and means for producing a glass flow of high homogeneity in a tank furnace, P (5) 113*a*.
Heitzinger, Friedrich See Sedlatschek, Karl
Helber, Carl A See Clement, Donald R.
Held, Llewellyn J. See Bedetti, Gianfranco
Helfmeier, Heinrich Ulrich See Knueppel, Reinhard
Hellberg, Karl H., and Massonne, Joachim Crystalline cryolite of high bulk density, P (1) 34*g*.
Heller-Kallai, L. See Yariv, S.
Hellman, Wayne R., Gottschalk, Klaus, and DeGeorge, Edward C. Discharge lamp having blow-molded arc tube ends, P (7) 161*i*.
Hellmold, P., Horlback, V., and Vorch, K. Effect of SiO_2 and Fe_2O_3 on the viscosity of fused CaC_2 (1) 37*j*.
Helmerhorst, S. J. See Mirani, H. V. M.
Helmreich, Dieter See Scholze, Horst
Helser, Jerry L., and Shannon, Richard F. Hydrous $CaSiO_3$ insulation products, P (1) 14*f*.
Hempelmann, Willi See Jarchow, Friedrich G. K.
Hemsath, Klaus H., and Vereecke, Frank J. Gas burner, P (1) 34*b*.
Hench, L. L. Ceramic implants (1) 22*f*; Characterization of glass corrosion and durability (7) 155*c*. See Clark, A. E., Jr. ; Clark, David E.
Hench, Larry L., and McEldowney, B. A. (Editors) A Bibliography of Ceramics and Glass, B (7) 189*h*.
Hender, V. C. Automation—some economic considerations (9) 199*f*.
Henderson, C. M. B., and Taylor, Derek Thermal expansion by X-ray diffraction—use of specimen holder as internal standard and expansion of MgO (periclase) and $MgAl_2O_4$ (spinel) (7) 176*g*; Thermal expansion of the nitrides and oxynitride of Si in relation to their structures (7) 188*f*.
Henderson, T. M. See Solomon, D. E.
Hendry, A. W. See Kadir, M. R. ; Sinha, B. P. ; Suter, G. T.
Heneghan, Leo F. See Lee, Leonard S.
Henin, Stephane See Besson, Huguette
Henkie, Zygmunt See Levitin, R. Z.
Henley, Ernest J. See Caceres, Sergio
Henn, John J. Updated cost evaluation of a metal and mineral recovery process for treating municipal incinerator residues (5) 147*c*.
Henney, John W., and Jones, James W. S. Conductivity of Si_3N_4, P (9) 212*j*; [Electrical] conductivity of Si_3N_4, P (9) 219*f*.
Hennicke, Hans Walter See Boehmer, H. H. ; Braun, Manfred; Herbst, Uwe; Safdar, M.
Hennicke, Hans Walter, and Gulati, Prithvi Rai Coarse grain bonding of corundum materials (5) 116*e*.
Henrich, Victor E. See Fan, John C. C.
Henrichsen, R. A., and Li, Che-Yu Capillarity and mass transport at the Ni-Al_2O_3 interface (3) 84*d*; Correction—Capillarity and mass transport at the Ni-Al_2O_3 interface (7) 180*g*.
Henriksen, A. F. See Kingery, W. D.
Henry, Dale V. See Blust, Henry L.
Henry, Jack L., and Thompson, Gerald G. Thermal expansion match between Mo (TZM alloy) and oxides of the perovskite and spinel types (5) 103*c*.
Henry, W. G. See Short, N. R.
Henshall, F. Casting metal articles, P (3) 69*d*.
Henshall, J. L. See Edington, J. W.
Hepworth, Matthew A. See Hancock, John D.
Herbert, J., Prod'homme, M., and Derobert, M. Viscosity temp. relations in the glass system SiO_2-Na_2O-K_2O-Al_2O_3-B_2O_3Pb-O in the composition range of Pb crystal glasses (9) 203*f*.
Herbert, Stan Glass-ceramics—a new way to the stars (9) 200*d*.
Herbst, Uwe, and Hennicke, Hans W. Determination of Poisson's ratio of commercial refractory bricks and MgO-doped samples as a function of porosity (9) 208*g*.
Herczog, Andrew, Layton, Margaret M., and Rice, Dale W. Magnetic metal oxide films bonded to a substrate, P (1) 28*g*.
Herd, S. R., and Chaudhari, P. Electron-beam-induced reversible transformations from glass to crystalline, liquid, and vapor phase in Se thin flims (7) 170*j*.
Hering, K. Calculation of temp. stress conditions in clinker silos (5) 98*g*.
Hermann, L. See Balazs, A.
Hermann, Peter Determination of small fluoride contents in solids and in gaseous emissions (3) 80*b*.
Hermans, M. E. A. Modification of raw materials (1) 34*j*.
Herrington, Richard A. See Hall, Harold R.
Herrmann, Hans-Joachim Changes in regulations concerning the release of toxic substances by ceramic glazes, decorations, and enamels in East Germany (1) 22*h*.
Herrmann, R. See Scheibe, W.
Herrnring, Jorg, Tolksdorf, Wolfgang, Rusche, Christian, and Mateika, Dieter Single crystal on the basis of Ga garnet, P (9) 220*b*.
Herron, L. Wynn, and Bergeron, Clifton G. Kinetics of oxidation of organic soils by catalytic ceramic coatings (9) 198*a*.
Herron, Robert H. See Ainsworth, John H.
Hertl, William Surface modification of SiO_2 particles, P (3) 62*i*.
Hertz, D., Spitz, J., and Besson, J. Chemical vapor phase deposition of HfC (3) 85*a*.
Hertzenberg, Elliot P. See Netting, David I.
Herzog, Heinz See Schiekel, Manfred
Hess, Paul C. PbO-SiO_2 melts—structure and thermodynamics of mixing (5) 143*i*.
Hesse, E. New type of roofing tile with various potential applications (7) 163*c*. See Piltz, G.
Heubach, Edward C. See Jauch, Ewald H.
Heuer, A. H. Classification scheme for polymorphic phase transitions in ceramics (3) 85*b*; Comment on "Primary recrystallization during the hot-pressing of $MgAl_2O_4$" (3) 85*c*. See Firestone, R. F. ; Porter, D. L. ; Robin, R.
Heuser, Hans J. See Kerstan, Walter
Hewitt, B. S. See Smith, D. H.
Hewitt, David A. Stability of the assemblage phlogopite-calcite-quartz (3) 92*a*.
Heye, Hermann Device for cutting portions from one or more strands of molten glass or like plastic material, P (9) 204*c*.
Heyer, W. See Wolf, Fredrich
Heyne, Clarence A. See Amberg, Stephen W.
Heyne, L. See Beekmans, N. M.
Heyraud, J. C., and Perrin, J. Epitaxy of Mg on molybdenite (1) 25*i*.
Hibbs, Louis E., Jr., and Wentorf, Robert H., Jr. Borazon and diamond compact tools (3) 49*a*.
Hibi, Masao See Kumada, Akio
Hibino, Taizo See Miyamoto, Masafumi ; Yoshida, Kazunori
Hibscher, Carl W., and Steltz, William R. Canadian glass industry's challenge in these energy critical times: I–III (3) 55*f*.
Hickernell, F. S. Acoustic properties of oxide films and their application to acoustic surface wave devices (7) 170*i*.
Hickmott, T. W. Defect centers in O-deficient rf-sputtered SiO_2 films: I, Electron spin resonance; II, Thermoluminescence (9) 228*g*.
Hicks, James C. Initial step toward metrication (7) 189*g*.
Hicks, John W., Jr. Glass blades, P (5) 112*b*.
Hicks, Terrill G. Modification of existing tunnel kilns can save energy, cut heat loss (1) 33*f*; Kaolin in slurry form the many benefits (9) 215*b*.
Hiettler, J. First results with the new process computer automation of a cyclone preheater kiln at the Mannersdorf cement works (3) 51*f*.
Higashide, Yoichi See Takahashi, Akikazu
Higasi, Keniti See Takahashi, Hiroaki
Higginbotham, I. G., Williams, R. H., and McEvoy, A. J. Metal/nonmetal interfaces—adhesion of Au on mica (1) 26*f*.
Higgins, J. K., Lewis, J. E., Lowe, M., and Roue, F. V. Preparation of vanadate-glass threshold switches (3) 58*g*.
Higgins, James F. Chrome yellow pigment with improved thermal stability, P (5) 134*h*.
Higuchi, Eiichi See Nakata, Ryohei
Hikino, Tadashi See Mikoda, Masaaki
Hikita, Akio See Onishi, Toshiyasu
Hilbig, Gerhard Temp. and flow fields of a multiple-electrode glass tank (1) 12*j*.
Hilker, E. See Piltz, G.
Hill, Bryan H. Semiconductor device, P (5) 128*c*.
Hill, Richard F., and Ott, W. Richard Optimization of prereacted lead glass batch (5) 108*h*.
Hillberry, Benny M., and Myers, Robert J. Fracturing crystalline materials, P (1) 28*c*.
Hillig, William B., Mehan, R. L., Morelock, C. R., and DeCarlo, V. J. Si/SiC composites (3) 68*a*.
Hillman, G. D., and Seguin, H. J. J. Influence of nucleating surface on sputtered ZnO thin films (7) 171*e*.
Hilpert, K., Beske, H., and Naoumidis, A. Mass spectrometric study of the vaporization of $Ba_3Al_2O_6$ and $BaAl_{12}O_{19}$ (5) 141*h*.
Hilscher, G., and Kirchmayr, E. Transition from weak ferromagnetism to paramagnetism in $Zr(Fe_{1-x}Co_x)_2$ (5) 146*i*.
Hinden, J., Augustynski, Jan, and Monnier, R. Systems Na_3AlF_6-Ta_2O_5 and Na_3AlF_6-$NaTaO_3$: I, Phase diagram (9) 241*e*.
Hindermann, Erich A. Apparatus for metering, blending, and conveying, P (1) 31*a*.
Hinds, J. F. Are there two types of stresses in glass during forming (3) 55*b*.
Hintenberger, Karl Ovens and their operation, P (9) 224*j*.
Hinze, J. W., Tripp, W. C., and Graham, H. C. High temp. oxidation behavior of an HfB_2+20 vol% SiC composite (3) 65*c*.
Hipp, Julius C. Porous ceramic battery vent, P (7) 173*e*.
Hiragushi, Keisuke See Ochiai, Tsunemi
Hiragushi, Keisuke, Hiwatari, Yukio, and Matsumoto, Yoshifumi Refractory properties of various ceramic fibers (3) 68*c*.
Hiragushi, Keisuke, Hiwatari, Yukio, Matsumoto, Yoshifunsi, and Okawa, Kiyoshi Property measurements of brickwork (7) 165*j*.
Hirai, Nobuki See Nishikawa, Tomozo
Hiraiwa, Osamu, and Kuwano, Kingo Refractories for rotary hearth furnace (3) 67*g*.
Hirano, Hitoshi See Fukuda, Tsuguo
Hirano, Jiro, and Yamada, Toshio Laminated sheetlike material, P (3) 61*b*.
Hirano, Masahiro, Nakamura, Shinichi, and Tsushima, Tachi-

ro Annealing effects on the magnetic anisotropy of LPE garnet thin films (5) 124*d*.
Hirano, Shinichi See Nakamura, Kazuo ; Sugai, Mikio
Hirano, Shinichi, Ismail, M. G. M. U., and Somiya, Shigeyuki Decomposition of ilmenite in KOH-H_2O solutions under high-pressure conditions (7) 180*c*.
Hirano, Toru See Sato, Katsunobu
Hirano, Toru, Sato, Katsunobu, Sarai, Hiromi, and Takada, Tadahiko Improvement of the physical and mechanical properties of fired clay bodies by PMMA impregnation (7) 165*h*.
Hirao, Genyu Evolution of plate glass production around the world (5) 106*c*.
Hiraoka, Genzo See Ando, Jumpei
Hiraoka, Hideo, Fukunaga, Osamu, and Iwata, Minoru Phase transformation of wurtzite-type BN at high temps. and pressures (7) 184*i*.
Hirasaki, K. See Hisatake, K.
Hirata, Yasushi See Akai, Shinichi
Hirose, Kazuhiko See Horikawa, Yukiya
Hirose, Kikuzi See Kitayama, Minoru
Hirota, Eiichi See Kawamata, Tadashi
Hirsch, Nathan See Hunsperger, Robert G.
Hirsch, Richard See Tyler, Christopher
Hisada, Eiichi See Hujii, Tooru ; Yoshikawa, Takayuki
Hisatake, K., and Hirasaki, K. Photoinduced broadening of ferrimagnetic resonance in polycrystalline YIG:Mn (1) 26*j*.
Hisatake, K., Ohta, K., and Noro, Y. X-ray induced effect of initial permeability in Ca-V-In substituted YIG (9) 242*e*.
Hiscutt, R. See King, R. D.
Hishinuma, Yukio See Tanaka, Hirobumi
Hishiyama, Sadao See Shinagawa, Kiminari
Hite, Edward L. See Hahn, William P.
Hiwatari, Yukio See Hiragushi, Keisuke
Hiwatashi, Yukio See Hoshiide, Yuji
Ho, L. T. Time dependence of the excitation spectrum of neutral Mg donors in Si (1) 47*e*.
Hoagland, R. G., Marschall, C. W., and Duckworth, Winston H. Reduction of errors in ceramic bend tests (7) 176*b*.
Hochdahl, O. First operating results of a 3300 tons/day production line with Lepol kiln at the Laegerdorf plant (3) 51*e*.
Hochschild, H. See Hoehne, R.
Hoda, Syed N., and Chang, Luke L. Y. Phase relations in the pseudoternary system Pbs-Cu_2S-Sb_2S_3 and the synthesis of meneghinite (3) 90*j*.
Hodge, I. M., Ingram, M. D., and West, A. R. New method for analyzing the ac behavior of polycrystalline solid electrolytes (7) 176*f*; Ionic conductivity of Li_4SiO_4, Li_4GeO_4, and their solid solutions (9) 233*g*.
Hodges, R. J., and Belcher, C. B. Alkali analysis using light reflected from the grating of an optical emission spectrometer (3) 79*c*.
Hodgins, C. G., and Irwin, J. C. Elastic constants of ZnSe (3) 86*j*.
Hodgkinson, H. R. See West, H. W. H.
Hodgson, Sirkka-Liisa Making and firing black pottery (7) 149*d*.
Hoebbel, D. See Engelhardt, G. ; Goetz, J.
Hoebbel, D., and Wieker, W. Constitution of a silicate with the anion $(Si_7O_{19})^{10-}$ (9) 228*c*.
Hoebbel, D., Wieker, W., Franke, P., and Otto, A. Constitution of the new $(Si_{10}O_{25})^{10-}$ (7) 155*a*.
Hoefdraad, H. E., and Blasse, George Green emitting Pr in Ca zirconate (5) 140*a*.
Hoefer, Gerhard See Baeumler, Peter
Hoehne, Karl, and Mund, Konrad Ag-coated W carbide electrode material, P (7) 173*h*.
Hoehne, R., Melzer, K., Hochschild, H., and Libor, G. Magnetic aftereffect in Ti-doped magnetite (1) 26*e*.
Hoehne, R., Melzer, K., and Libor, G. Influence of small Ti additions on the induced magnetic anisotropy in Fe-rich Ni ferrites (1) 26*b*.
Hoekstra, B. See Hansen, P.
Hoekstra, H. R. See O'Hare, P. A. G.
Hoens, M. F. A. Self-cleaning enamels (1) 4*d*. See Teigeler, A.
Hoertz, Charles D., Jr. See Newman, John W.
Hofer, Eric M. See Simon-Vermot, Andre
Hoffman, Dorothy M. See Leibowitz, Donald
Hoffman, R. A. See Hopkins, R. H.
Hoffmann, G., Nagy, A., and Puskas, L. Investigation of the diffusion parameters of the borosilicate-Si system by ir absorption (1) 40*h*.
Hoffmann, Hans Practical experience in enameling by electrophoresis; Discussion (3) 54*e*; New methods for possible rationalization of the enameling process (7) 154*c*; Electro-dip enameling—a signpost in a new direction (9) 198*f*. See Hees, Bruno
Hoffmann, Ludwig Propagation of surface waves on piezoelectric ceramic (9) 218*a*.
Hoffmann, U. Dry glazing—a contribution to the new technologies (9) 215*a*. See Heide, Helmut
Hoffmeister, Bernhard Dual-purpose remote-control grab for fuel elements and control rods of a nuclear reactor, P (5) 129*d*.
Hoffstedt, Donald J. Detection of flaws in composite fiberglass structures, P (3) 60*h*.
Hofmaenner, F. Experiments in the stereological determination of clinker fabric with automatic image analyzers (3) 51*e*; Microstructure of Portland Cement Clinker, B (3) 95*e*.
Hofmann, Horst, and Katz, Helmut Coating graphite bodies with metals, P (1) 21*e*.
Hogarth, C. A., Moridi, G. R., and Nouruzi-Khorassani, A. Current-controlled negative differential resistance in films of borosilicate glass (9) 199*g*.
Hohnfeld, Peter, and Langenberg, Hartmut Mixer for particulate materials, P (5) 130*e*.
Hojo, Junichi See Kato, Akio
Hojo, Junichi, Iwamoto, Osamu, and Kato, Akio Formation of fine VN powders by the CVD method (1) 39*h*.
Hoke, J. H. See Smyth, Jay R.
Holba, P., Nevriva, M., and Pollert, E. Tetragonal distortion of spinel solid solutions $MnCr_2O_4$-Mn_3O_4 (1) 47*c*.
Holcombe, Cressie E., Jr., and Powell, George L. Thin-walled ceramic articles of concave configuration, P (3) 55*d*.
Holden, Abe N. Ceramic-lined combustion chamber and means for support of a liner with combustion air penetrations, P (3) 69*e*.
Holden, W. S. See Standley, R. D.
Hollan, Laszlo Depositing layers which mutually differ in composition onto a substrate, P (5) 127*c*.
Holland, A. E., and Segnit, E. R. ZnO-rich area of the ternary system ZnO-TiO_2-SiO_2 (3) 93*j*.
Holland, A. E., Segnit, E. R., and Gelb, T. Reactions of Sr-CO_3 and $CdCO_3$ with kaolinite between 400 and 1100°C (7) 185*i*.
Holler, Howard V. Alpha alumina, P (1) 34*e*.
Holler, Robert W. Method and apparatus for coordinating applicaton of heat to a melt from sources above and below the melt surface, P (9) 205*f*.
Holleran, Louis M. See Cantaloupe, Francis A.
Holley, C. E., Jr. See Kornilov, A. N.
Holliday, Charles H. See Bradsley, William
Holliday, Leslie (Editor) Ionic Polymers, B (3) 94*j*.
Holliday, Robin D. See Milne, David J.
Holliday, Robin D., and Milne, David J. Experimental evaluation of routes for purification of bauxite by gas-solid reactions (3) 82*a*.
Hollister, Paul Glazing of the Crystal Palace (3) 49*g*.
Holloway, D. G. See Weidmann, G. W.
Hollyday, Robert D. Mounted ceramic filter, P (5) 127*h*.
Holman, Robert L., and Faibath, Richard M. Intrinsic nonstoichiometry in the Pb zirconate-Pb titanate system determined by Knudsen effusion (7) 183*c*.
Holmes, W. H., Davies, E., and Moore, F. Engergy conservation: II. Table of waste-heat content of exhaust gases from kilns and boilers (3) 81*b*.
Holt, D. B., and Abdalla, M. I. Some effects of annealing and nonstoichiometry on the structure of epitaxial films of CdTe on Ge (5) 126*j*.
Holt, William C., Jr. See Youtsey, Karl J.
Holz, Joachim Development and problems of forehearth heating (1) 6*j*.
Hommel, Ernest M. See Carini, George F.
Honda, Hidemasa, Isayama, Yukio, Jinnai, Kazuhiko, and Kimura, Kunio Lightweight composite containing hollow glass microspheres, P (1) 14*g*.
Hong, K. C., and Kleppa, O. J. Enthalpies of mixing in some binary liquid alkali fluoride mixtures (7) 182*a*.
Honig, J. M. See Keem, J. E. ; Sinha, A. P. B.
Honjyo, Takako See Sakamoto, Chiaki
Hooker, Colin E. L., and Tomes, Derek W. SiO_2 etch rate control by controlled additions of P_2O_5 and B_2O_3, P (3) 77*f*.
Hooper, A. See Tuck, B.
Hooper, Anthony M. See Curtis, Donald
Hopkins, R. H., Hoffman, R. A., and Kramer, W. E. Moisture-resistant optical films—their production and characterization (5) 108*i*.
Hopkins, Stephen W. See Strangman, Thomas E.
Hoppe, Rudolf See Brachtel, G. ; Brunn, H. ; Jansen, M. ; Schartau, W.
Hopper, R. W., and Uhlmann, D. R. Dependence of interfacial tension on separation for two regular solution interfaces (7) 180*f*.
Hopstock, D. M. See Lawver, James E.
Horak, J. See Frumar, M.
Horak, J., Matyas, M., and Tichy, L. Lattice defects in Mn-doped Sb_2Te_3 crystals (1) 41*j*.
Hori, Ryuzo See Oki, Masami
Horie, Tyuich See Suzuki, Hideyuki
Horiguchi, M. See Miyashita, T.
Horikawa, Yukiya Effects of ionic surface active agents on the floatability and electrophoretic mobility of selected clays (9) 230*g*; Electrokinetic behavior of allophane-imogolite mixtures in alkaline media and imogolite; Electrokinetic phenomena of aqueous suspensions of allophane (9) 231*e*.
Horikawa, Yukiya, and Hirose, Kazuhiko Spectrophotometric measurement of flocculation rate of selected clays (9) 239*b*.
Horiki, Seinosuke Panel-styled calorific devices, P (3) 76*j*.
Horisaki, Masaru See Nakahara, Yasuo
Horiuchi, Masatada Extremely thin Si oxide film, P (1) 28*j*.
Horlback, V. See Hellmold, P.
Hormodaly, J. See Reisfeld, Renata
Horn, William See Augkern, Allan
Hornemann, U. See Schneider, H.
Hornman, Johannes See VanEsdonk, Johannes
Horowitz, D. J. See Sharp, E. J.
Horowitz, I. Manufacture of glass beads for commerical use (7) 158*h*.
Horowitz, Neal C., and Wurst, J. C. Thermal properties of CdTe (1) 12*d*.
Horowitz, P., and Grodzins, L. Scanning proton-induced X-ray microspectrometry in an atmospheric environment (5) 131*j*.
Horsley, G. W., Weldrick, G. J., Turnbull, J. A., and Shipp, R. Influence of irradiation temp., burnup, and fuel composition on gas pressure (Xe, Kr, Co, CO_2) in coated particle fuels (3) 77*j*.
Hortal, M. See Moya Corral, J. S.
Horton, Arthur E., Brantley, Jordan W., Smith, Paul R., and Lightfoot, Cecil W. Continuous film transistor fabrication process, P (7) 172*a*.
Hosack, Harold H. See Amelio, Gilbert F.
Hosaka, Giko See Goto, Seishi
Hosaka, Kosaku, and Izumitani, Tetsuro Laser glass (5) 107*e*.
Hosaka, Takuo See Kamei, Shiro
Hosegood, Samuel B. Gas-cooled nuclear reactor fuel elements, P (5) 129*f*.
Hoshiide, Yuji, Ochiai, Tsunemi, Hiwatashi, Yukio, and Itoi, Hidenobu Taphole mixes and trough lining materials for blast furnaces (7) 166*j*.
Hoshikawa, Takeshi, and Akagi, Saburo Inversion temps. of Fe-leucite crystals formed in SiO_2-Fe_2O_3-K_2O glasses (5) 107*j*.
Hoshino, Hideoki See Nakamura, Yoshio
Hoshino, Mineji See Yanagi, Masamitsu
Hoshino, Yoshio See Toide, Takashi
Hosokawa, Kunisuke See Ohga, Youichi
Hothem, John H. See Cable, Stephen J.
Hotta, Noriyasu See Matsuo, Shigetomo,
Hottenwitzsch, P. See Klose, H.
Hotz, G., and Bartha, P. Present position of refractory lining construction for rotary kilns (3) 66*j*.
Houben, Mathijs M. H. Mixture for TV glasses, P (5) 113*b*.
Houd, Rolf D. Rotary kiln plant, P (7) 153*c*.
Houdek, V. See Smetana, Z.
Houlihan, John F., Danley, W. J., and Mulay, L. N. Magnetic susceptibility and EPR spectra of Ti oxides—correlation of magnetic parameters with transport properties and composition (7) 183*g*.
Houseman, D. H. Refractories and the newer steelmaking processes: I. General discussion of refractory requirements; II, Basic O steelmaking process (1) 19*a*; Refractories and the newer steelmaking processes: III, Basic O steelmaking process—2; IV, Tuyere-O steelmaking processes (3) 67*f*; Refractories and the newer steelmaking processes: V, Tuyere-O steelmaking processes—2 (5) 119*g*; Refractories and the newer steelmaking processes: VII, Ladles and ladle control systems (7) 165*j*; Refractories and the newer steelmaking processes: IX, Ladles and ladle control systems-3 (9) 211*j*. Performance of high-Al_2O_3 in selected steelmaking situations (7) 165*g*.
Houston, Alexander M. Ceramic fibers fight heat in difficult environments (3) 64*c*.
Hovel, H. J., and Woodall, J. M. Improved photovoltaic devices, using transparent contacts (5) 107*i*.
Hovrez, R. See Derie, Rene
Howard, Richard W., and Weier, Roman J. Destacking apparatus, P (3) 63*d*.
Howard, Robert N., and Sowman, Harold G. Spheroidal composite particle, P (3) 49*f*.
Howe, Robert A., McGee, Thomas D., and Osterholtz, Carl E. Attack of a tar-bonded periclase refractory by a dolomitic BOF slag (5) 115*h*.
Howell, Frank, Woodward, Carol, and Woodward, Robert H. Craft of Pottery, B (1) 48*g*.
Howell, Thomas E. Fuel rod pellet-loading head, P (1) 30*h*.
Hower, John See Eberl, Dennis ; Thompson, Graham R.
Howes, V. R. Surface strength of coated glass (1) 12*d*.
Howey, Robert E. Industrial process for the production of glass razor blades, P (9) 205*j*.
Howlett, D. J. See Rose, M. E.
Hrapka, Ilona See Toth, Kalman
Hraste, Marin Possibility of using the specific surface area to define cement fineness (5) 101*d*.
Hritz, George G. See Leach, Bruce E.
Hsieh, C. K., and Coldewey, R. W. Thermal radiative properties of antireflection glass for flat plate solar collector covers (1) 12*d*.
Hsu, T. R. See Simpson, L. A.
Huang, Patrick C. S. See Esch, Ronald P.
Huang, W. H. Investigation of the fluid characteristics of cement grouts (9) 195*i*.
Huang, Wuu Liang, and Wyllie, Peter J. Melting and subsolidus phase relations for $CaSiO_3$ to 35-kbar pressure (3) 89*g*.
Huang, Y. Y., Hunt, J. L., and Stevens, J. R. Determination of elastic constants in isotropic silicate glasses in Brillouin scattering (7) 155*i*.
Hubbard, W. N. See Johnson, Gerald K.
Hubby, L. M., Jr. See Cook, William R., Jr.
Huber, E. J., Jr. See Kornilov, A. N.
Huber, William W., Shriner, Rollin R., and Shuman, Harry N. Case assembly with WC inserts for ceramic tile die, P (5) 124*f*.
Hubers, Hendrik J. See LaGrouw, Coenraad M.
Hubin, Rene EPR and recrystallization of metamict thorite (5) 138*j*.
Huch, Richard O., and Valles, Pedro Talco-molybdenite separation, P (3) 83*i*.
Huckabee, Marvin L. See Palmour, Hayne, III
Huczwa, Janina See Pelczar, Stanislaw
Hudecek, Carl J. Thermally crystallizable glasses possessing precision controlled crystallization and flow properties, P (7) 163*c*.
Hudson, Marshall C. Mixer for optical wave-guide bundle, P (3) 61*i*; Termination for fiber optic bundle, P (3) 62*i*.
Hudson, P. R. W. Thermal resistivity of diamond heat-sink bond materials (7) 172*f*.

Hudson, Rupert O. (Editor) Proceedings, Australasian Vitreous Enamellers' Institute Convention, Vol. 4, 1974, B (5) 148*d*.

Huege, Fred R. Purification of talc, P (7) 179*a*.

Huggins, Robert A. See Elliot, A. Grant ; Liebert, B. E.

Huggins, Robert A., Bube, Richard H., and Roberts, Richard W. (Editors) Annual Review of Materials Science: Vol. 5, 1975, B (1) 48*h*.

Hughes, A. E. See Taylor, R. I.

Hughes, D. M. See McKeever, S. W. S.

Hughes, Garyth See Bickerdike, Robert L.

Huizinga, Martin See Hall, Harold R.

Hujii, Tooru See Yoshikawa, Takayuki

Hujii, Tooru, and Hisada, Eiichi Ceramic honeycomb structures, P (3) 79*c*.

Hulm, John K. See Gavaler, John R.

Humbert, Maurice, and Streel, Dominique Preparing steel for enameling, P (3) 55*b*.

Humenik, J. N., Cook, Ralph L., and Wirtz, G. P. Reduction of V_2O_5 by $MoSi_2$ (7) 185*j*.

Hummel, Floyd A. See Peters, Dennis; Samanta, Sudarsan C.

Hummel, Merritt J. Improving quality of flat glass formed on molten tin, P (5) 113*e*; Crystallized glass, P (7) 161*i*.

Hummel, Merritt J., and Nier, Thomas J. Improving the quality of flat glass formed on a bath of molten Sn, P (9) 205*i*.

Hums, H. See Jax, P.

Hund, Franz See Leitner, Lutz

Hunklinger, S. See Jaeckle, J.

Hunneman, R. See Evans, C. S.

Hunsperger, Robert G., and Hirsch, Nathan Ion implanted GaAs semiconductor devices fabricated in semi-insulating GaAs substrates, P (3) 76*e*.

Hunt, J. L. See Huang, Y. Y.

Hunt, William Marsh Pottery (7) 149*d*; Basic throwing: I (9) 193*j*.

Hunter, O., Jr. See Bailey, D. M. ; Schomel, R. R.

Hunter, O., Jr., and Graddy, George E., Jr. Porosity dependence of elastic properties of polycrystalline cubic Lu_{2O3} (3) 90*g*.

Hunter, Richard I. See Brockway, M. Clifford

Huntley, Frank D. See Boysen, Stuart W., III

Hurle, Donald T. J. See Bradsley, William

Hurrell, J. P. See Dutt, B. V.

Hursan, Laszlo Prospecting clay deposits by borehole geophysical methods (3) 83*b*.

Hurst, C. H., and Davis, E. A. Electronic properties of vitreous and liquid As-Se alloys: I–II (1) 7*i*.

Hurst, Vernon J. See Bosio, Nivaldo J.

Hurwitt, Steven Drying ceramic tape, P (9) 224*h*.

Hurx, Adrianus A. See Man in't Veld, Jan

Huseby, Irvin C., Lukas, H. L., and Petzow, Guenter Phase equilibria in the system Si_3N_4-SiO_2-BeO-Be_3N_2 (1) 43*a*.

Husemann, Klaus, Bernhardt, Claus, Gottschalk, Juergen, and Heegn, Hanspeter Crushing and activation in high-speed pin mills using quartzite and limestone (1) 30*e*.

Hussain, L. A., and Northrop, D. C. Electronic radiation damage in diffused Si solar cells (1) 25*f*.

Hussain, M. Zafar See Din, Ahmad

Hussiun, A. L. See Eissa, N. A.

Hutchison, J. L., Anderson, J. S., and Rao, C. N. R. Lattice images of dislocations in the ferroelectric material $Ba_2Bi_4Ti_5O_{18}$ (9) 234*h*.

Hutton, John R. Apparatus for manufacturing rough faced brick, P (7) 163*i*.

Hwang, Sung Yun See Lee, Eung Sang

Hyman, Sylvia Beads from raku-fired Egyptian paste (9) 193*j*.

Hymers, William See Freeman, Alan

Hynd, W. C. Apparatus for feeding glass batch, P (7) 161*a*.

Hyun, Sang Hoon See Lee, Hee Soo

Hyzer, William G. Photography—macro or micro (1) 32*i*.

Iacconi, P. See Caruba, Raoul

Ibadullaev, S. I. See Kuzovlev, A. K.

Ibing, R. Air separation and de-dusting—common and contradictory features (3) 50*d*.

Ibragimov, F. Kh. See Rakhimkulov, M. G.

Ibragimova, E. M. See Antonov, V. A.

Icenogle, H. W. See Platt, Ben C.

Ichikawa, Hiroshi See Kanemaru, Toyonosuke

Ichiko, Tadatoshi Reaction process during the firing of a china body containing Ca H phosphate, a by-product of gelatin production (7) 169*h*.

Ichimura, Nobuyoshi See Suzuki, Yoshiro

Ichimura, Takeo, and Kaneko, Teruo Glass body having a fluorescent pattern inwardly of a surface thereof, P (7) 161*e*.

Ichinose, Akio, and Einaga, Hisahiko Determination of N and Si in Si_3N_4 (3) 79*j*.

Ichinose, Noboru, and Okuma, Hideo Oxide semiconductors for detecting gaseous components (9) 218*c*.

Ichinose, Noboru, and Yokomizo, Yuji Oxide varistor, P (1) 29*b*.

Ichinose, Y. See Amemiya, Masahiro

Ide, Allan R. Method and apparatus for storing and unloading bulk material, P (7) 175*j*.

Idoux, M. Installation of linings for large-size rotary kilns (7) 151*i*.

Iemura, Iwao See Saeki, Osamu

Ienciu, M., Panait, N., and Constantinescu, I. Experimental research regarding SiO_2 solubility in Na aluminate solutions (9) 225*a*.

Iga, Atsushi, Makino, Osamu, Matsuoka, Michio, and Masuyama, Takeshi Voltage-dependent resistors, P (1) 29*c*.

Iga, Takeo See Kato, Shuzo

Iga, Takeo, and Kato, Shuzo Sintering characteristics of thermally decomposed Al_2O_3 prepared from Al sulfates containing some metallic ions (7) 186*c*.

Igarashi, Hideji Effect of porosity on electrical and magnetic properties of ceramics (3) 73*d*.

Ignatchenko, V. A., and Tsifrinovich, V. I. Electron-NMR in a thin ferromagnetic film (9) 231*i*.

Ignatenkova, N. I. See Kuzovlev, A. K.

Ignatova, T. S., Uzberg, L. V., Ust'yantsev, V. M., and Tretnikova, M. G. Periclase concretes based on Zr phosphate binders (3) 66*d*.

Igo, Takeo See Zembutsu, Sakae

Igonet, Ch. Atomic vibrations and crystalline nucleation (1) 5*c*; Raw materials for glass-ceramics (5) 109*e*.

Igras, E., Krylow, J., and Rosinski, W. Effect of removal of Ga acceptors in ion bombarded Si (1) 37*j*.

Igumnov, M. S. See Belov, S. F.

Ihara, Masayoshi, Dazai, K., and Ryuzan, O. Vapor-phase epitaxial growth of GaAs in a N atm (7) 188*g*.

Iida, Takaya See Katayama, Kaoru

Iida, Yoshio See Masuyama, Takeshi

Ikeda, K., Nakamichi, T., Shimizu, M., and Ono, S. Correlation between the electrical resistivity and magnetic moments in Fe_2A (A = Sc,Y,Zr,Hf) (5) 136*a*.

Ikeda, M. See Suzuki, A.

Ikeda, Masahiro, and Yoshikiyo, Haruo Pulse separating in transmission characteristics of multimode graded index optical fibers (9) 202*f*.

Ikeda, Shuji See Takatsu, Manabu

Ikeda, Takashi Apparatus for supplying sheets to a sheet processing machine in successive stacks, P (3) 60*j*.

Ikeno, S., and Furubayashi, E. Dislocation behavior in pure Nb at low temps. (1) 37*a*.

Ikeo, H. See Okamoto, E.

Ikonnikova, G. M. See Tymchishin, P. N.

Ikonopisov, S., Klein, E., Stanchev, A., and Nikolov, Ts. Absorption edge and energy gap of anodic oxide films on Bi (3) 72*h*.

Ikorskii, V. N. See Bobrysheva, N. P.

Ilardi, Joseph M., Walden, John, and Rau, Eric Na_2CO_3, P (5) 135*c*.

Il'chenko, A. I. See Karpinos, D. M.

Il'chenko, V. I. See Svetlov, V. A.

Ilegems, Marc See Lang, David V. ; vanderZiel, J. P.

Ilegems, Marc, and Panish, Morton B. Phase diagram of the system Al-Ga-P (1) 43*f*.

Iles, G. S., and Tindall, R. F. Thick film Pt resistance thermometer (3) 75*e*.

Ilgemann, Rudolf See Wurmb, Rolf

Iliev, M. N. See Stoyanov, S. G.

Il'inskii, B. P., Shchitsin, A. G., and Shchitsina, Yu. K. Improving the quality of brick by applying a magnetic field on argillaceous raw materials (5) 114*f*.

Ilk, Emil Stemmed glassware, P (9) 206*g*.

Illig, J. L., Teree, M., and Bressieux, M. Stress-strain diagrams for lightweight concrete (5) 101*g*.

Illiunin, Vladimir G., Murogov, Viktor M., and Shmelev, Anatoly N. Fast-neutron reactor, P (3) 78*e*.

Ilyashenko, E. I., Kleparskii, V. G., and Yurchenko, S. E. Dynamics of cylindrical bubble propagation in thin garnet films (3) 73*b*.

Il'yashenko, I. S. See Protsenko, L. M.

Il'yasov, I. I. See Davranov, M.

Ilyukhin, V. V. See Kazak, V. F. ; Maksimova, N. V.

Imai, Hideki See Takamiya, Youichi

Imai, Hiroyuki, and Kaharu, Rikuo Method and apparatus for forming by vibration a refractory lining of a container for a molten metal, P (7) 167*f*.

Imai, Kiyokata See Sakaeda, Osao

Imamura, Yoshihiro See Uemura, Chikao

Imanov, A. M., and Mamedova, Kh. S. Soluble substances of volcanic glasses and their influence on the activity of mineral additives (3) 59*j*.

Imaoka, Minoru See Sakamura, Hiroyasu ; Toyuki, Hiroshi

Imashev, M. K. See Butt, Yu. M. ; Kuatbaev, K. K.

Imoto, Fumio See Kaneko, Shoji

Imoto, Shozo, Koizumi, Iwao, and Kuzuoka, Shinichi Production of ceramic sheets by papermaking technique (1) 23*c*.

Inada, Isamu See Minai, Kiichi

Inagaki, Akio See Naka, Shigeharu

Inagaki, Michio See Ito, Suketoshi ; Naka, Shigeharu

Inagaki, Mitiji See Yokoi, Hideharu

Inagaki, Yoshihiro See Watanabe, Ichiro

Inaniwa, Keizo See Ryugo, Noboru

Ing, Paul W. High-temp. semiconductor processing, P (7) 172*j*.

Ingram, M. D. See Duffy, J. A. ; Hodge, I. M.

Ingrey, Sidney J. Sputtered dielectric thin films, P (9) 220*c*.

Ingrey, Sidney J., Westwood, W. D., Cheng, Yiu Chung, and Wei, J. Variable refractive index and birefringent wave guides by sputtering Ta in O_2N_2 mixtures (3) 59*j*.

Inkson, J. C. See Burt, M. G.

Inns, David H., Bennett, William R., and Chambers, Arnold One-piece glass stemware, P (5) 113*d*.

Inomata, Yoshizo Oxidation-resistant Si-impregnated surface layer of reaction-sintered Si_3N_4 articles (1) 43*b*; Thermal stability of α-Si_3N_4 in Si-N_2-O_2 system at 1730°C (1) 47*j*; Nitridation of Si powder (5) 142*g*.

Inomata, Yoshizo, Matsuyama, Tatsuo, Yukino, Ken, and Tsutsumi, Masayuki Microstructure and etching of hot-pressed Si_3N_4 with Al_2O_3 (9) 235*e*.

Inomata, Yoshizo, and Uemura, Yoichiro Nitridation kinetics of Si powder (1) 42*e*.

Inomata, Yoshizo, Yukino, Ken, and Wada, Toshiaki Reaction between Al_2O_3 and Si in N atm (9) 238*i*.

Inoue, Eiichi Colored transparent photomask, P (1) 13*i*.

Inoue, Hiroshi See Tsuge, Akihiko

Inoue, Kiyoshi See Nishikawa, Tomozo

Inoue, Kozo See Tsunematsu, Shuji

Inoue, Masayoshi, Tsuchihashi, Shoji, and Kawamoto, Yoji Vitreous photoconductive material, P (9) 206*a*.

Inoue, Norihiro See Hara, Naomichi

Inoue, Yasuo See Nakahara, Yasuo

Inozemtsev, M. V. See Ioffe, A. I.

Inyushkina, T. L., Petukhova, L. P., and Kornilova, V. T. Solubility of MgO in a melt of alkali metal chlorides (9) 239*i*.

Ioff, N. U. See Prokof'eva, E. A.

Ioffe, A. I., Inozemtsev, M. V., Lipilin, A. S., and Perfiliev, M. V. Effect of the grain size on the conductivity of high-purity pore-free ceramics Y_2O_3-ZrO_2 (9) 230*i*.

Ioffe, V. A. See Belyaninov, Yu. N.

Ionchev, Khr., Vulcheva, S., and Stoinov, V. Use of a planned experiment to optimize cement composition by addition of ash from a thermal electric power plant (3) 53*g*.

Ionescu, Ion Effect of the properties of aggregates on the properties of fresh concrete (5) 99*i*.

Ionescu, R. See Jaklovszky, J.

Ionescu, R., Jaklovszky, J., Nistor, N., and Chiculita, A. Grain size effects on thermoelectrical properties of sintered solid solutions based on Bi_2Te_3 (1) 39*d*.

Ionov, L. N. See Akimov, I. A.

Ippolitov, E. G. See Tsiklauri, Ts. G.

Iqbal, M. Z. See Davidson, S. M.

Irie, Toshio, Yokoyama, Yasuo, Kameishi, Yoshihiko, and Yamaguchi, Katsuo Forming an insulating glass film on surfaces of an oriented Si steel sheet, P (5) 127*j*.

Irie, Toshio, Yokoyama, Yasuo, Sugiyama, Toshitomo, and Shimanaka, Hiroshi Forming an insulating glass film on a grain-oriented Si steel sheet having a high magnetic induction, P (5) 127*i*.

Iriya, Teruhiro See Omori, Shigemi

Irlam, Philip S. See Lythgoe, Stanley

Ironside, Donald S. Check the safety of your instruments (5) 130*j*.

Irvine, Steven Extended throwing (7) 149*b*.

Irving, Anthony J., and Wyllie, Peter J. Subsolidus and melting relations for calcite, magnesite, and the join $CaCO_3$-Mg-CO_3 to 36 kbars (5) 145*f*.

Irwin, J. C. See Hodgins, C. G.

Irwin, John A. Ceramic combustion liner, P (5) 121*d*.

Irwin, William W., Jr. Ceramic refractory setter, P (7) 167*f*.

Irzikevicius, A. See Bendorius, R.

Isaacs, Thelma J., and Gottlieb, Milton S. Tl_3TaS_4 and Tl_3TaSe_4 crystals and acousto-optical devices, P (9) 220*e*.

Isaacs, Thelma J., Gottlieb, Milton S., Feichtner, John D., and Price, Andrea A. Tl_3VS_4 and Tl_3NbS_4 crystals and acousto-optical devices, P (5) 114*f*.

Isabelle, H. L. See Weaver, W. S.

Isaev-Ivanov, V. V., Masterov, V. F., and Nasledov, D. N. Supermagnetism of Fe-doped GaAs (9) 240*f*.

Isakova, L. G. See Taube, P. R.

Isakova, M. See Gencheva, G.

Isard, J. O. Origin of electric potential in the ion exchange theory of the glass electrode (9) 202*i*.

Isard, J. O., and Sakai, H. Determination of thermal expansion difference between glasses by the measurement of birefringence in seals (5) 105*a*.

Isawa, Yuichi See Kato, Shuzo

Isayama, Yukio See Honda, Hidemasa

Isbasescu, A. See Borcea, C.

Iseki, Takayoshi See Suzuki, Hiroshige ; Wakabayashi, Akira

Isham, Allan B. See Gray, Richard A.

Ishibashi, Yoshio See Sato, Yasuo

Ishida, Iwao See Wada, Masamichi

Ishigame, Mareo, and Kojima, Masahisa Second-order Raman spectra of ThO_2 (9) 238*f*.

Ishigilov, G. P. See Bron, V. A.

Ishii, Eiichi See Takagi, Hiroyoshi

Ishii, Mitsuru See Takagi, Kazumasa

Ishii, Shigeo See Takeda, Yuji

Ishii, Tadao See Okutani, Takeshi

Ishii, Takashi, Takahashi, Kazuhisa, and Kondo, Akihiro Forming semiconductor layers by vapor growth, P (9) 219*a*.

Ishima, Kenichi See Tanaka, Minoru

Ishino, Norimoto Grinding aids for cement clinker (9) 195*b*.

Ishisaka, Tsutomu Apparatus for reshaping or bending tubular envelopes of fluorescent lamp assemblies into annular form, P (3) 60*i*.

Ishiwata, Shuuji See Shonozaki, Tomonobu

Ishiyama, Masahiko See Suzuki, Yoshiro

Ishizuka, Takeshi See Suzuki, Kensuke

Ish-Shalom, M. See Bentur, Arnon

Iskander, George R. Manufacture of ceramic molds for precision metal castings (9) 210*c*.

Islam, M. R. See Islam, N.

Islam, N., Islam, M. R., Ahmad, S., and Waris, B. Optical spectra, electrical conductances, densities, and viscosities of glass-forming melts (5) 108*f*.

Islam, N., Islam, M. R., Waris, B., and Ismail, K. Transport behavior of glass-forming melts (7) 160*j*.

Islamov, T. I. Improvements in the production technology of facing tiles (9) 215*i*. See Sladkov, A. S.

Ismail, Hassan Polishing rolled glass (3) 58*c*.

Ismail, K. See Islam, N.
Ismail, M. G. M. U. See Hirano, Shinichi
Isohata, Susumu, Sasaki, Kyoichi, and Minamitani, Yoshihiro Inorganic hardening composition, P (7) 167*d*.
Isomoto, Masaki See Hamamoto, Fujio
Ispravnikov, V. M. See Bol'shakov, A. G.
Isupova, E. N., Savchenko, E. P., and Keler, E. K. Reaction of Ta_2O_5 with Er oxide (9) 238*j*.
Itaya, Ko See Nakagawa, Kenji
Ito, Kazuhiro See Kawamura, Masao
Ito, Setsuro See Tashiro, Megumi
Ito, Shigeru, Kodaira, Kohei, Tsunashima, Atsumu, and Matsushita, Toru Vapor growth of $BiSbO_4$ single crystals (7) 188*f*.
Ito, Shinichi See Takeuchi, Hiroshi
Ito, Suketoshi See Suzuki, Kazutaka
Ito, Suketoshi, Shibata, Shozi, Suzuki, Kazutaka, and Inagaki, Michio Kinetic studies on the formation of Ca monoaluminate (1) 41*c*.
Ito, Yoichi See Nakatani, Satoshi
Ito, Yuji, and Akimitsu, Jun Observation of orbital ordering in K_2CuF_4 (9) 236*a*.
Itoh, Hideaki See Takahashi, Takehiko
Itoh, Tadatsugu, and Oana, Yasuhisa Ga(AsP) light-emitting diode formed by ion implantation (7) 171*c*.
Itoi, Hidenobu See Hoshiide, Yuji
Ivakin, A. A. See Glazyrin, M. P.
Ivanchenko, L. A. See Paderno, Yu. B.
Ivanchenko, Yu. M., and Trush, G. I. Semimetals with paramagnetic impurities (5) 126*h*.
Ivanenko, G. P., Dovgopol, V. I., and Aleksandrov, S. E. Slag pumice as an effective building material (9) 196*i*.
Ivanenko, V. N. Ultralightweight aggregates for concrete from siliceous rocks (5) 102*h*. See Krupin, A. A.
Ivannikova, R. V., and Belikova, M. I. Cause of the low water resistance of gypsum binders (5) 98*i*.
Ivanov, A. B. See Asonov, A. N.
Ivanov, E. V. See Bunina, V. P.
Ivanov, I. A., and Kalashnikova, I. G. Production of shale-ash bricks through semidry pressing (9) 207*j*.
Ivanov, I. A., Shal, B. V., Uklein, E. D., and Krigsman, F. B. Effect of particle size of argillaceous raw materials on the grade of Keramzit gravel (9) 194*f*.
Ivanov, Iv. See Dyakovska, Tsv.
Ivanov, L. I. See Dement'ev, L. N.
Ivanov, L. I., Nikiforov, Yu. N., and Yanushkevich, V. A. Changes in the electrical conductivity of semiconductor crystals during the passage of shock waves from a pulsed laser (5) 124*f*.
Ivanov, S. N., and Mansfel'd, G. D. Amplification of ultrasound in *n*-type InSb in a strong electric field (1) 35*d*.
Ivanov, V. M., Kalinin, G. M., Kuzovitkin, V. F., and Alekseenko, L. S. Deposition and properties of alumina-calcia coatings (3) 54*i*.
Ivanov, V. V. See Ryss, S. M.
Ivanova, G. M. See Korobka, L. A.
Ivanova, L. P., and Borzykh, A. A. Effect of ultrasound on the properties of thermoplastic slips (1) 23*d*.
Ivanova, M. See Peshev, P. ; Stamenov, St.
Ivanova, M. P. See Pesina, N. M.
Ivanova, M. Ya. See Karas, G. E.
Ivanova, N. A. See Vyrodov, I. P.
Ivanova, N. I. See Efimova, L. P.
Ivanova, V. M. See Rashina, E. P.
Ivanova, V. M., Baskakova, G. P., Denisova, S. S., and Utkina, T. D. Production technology for glazes for articles mfg. from tempered glass (3) 58*h*; Technology of glazing tempered glass articles (5) 110*d*.
Ivanova, V. M., Yantarev, V. V., Smirnov, R. G., and Baskakova, G. P. Mechanized molds for the production of high-quality utensils (9) 221*c*.
Ivanov-Smolenskii, G. A. See Galkina, O. S.
Ivarsson, Paul L., and Havranek, Peter H. Refractory linings, P (9) 214*f*.
Ivchenko, E. L. See Vekua, V. L.
Ivinskaya, L. I. See Kvyatkovskaya, K. K.
Ivleva, L. I. See Zharikov, E. V.
Ivocs, Laszlo, and Filep, Gyula Future of monolithic linings in tapping ladles in the steel plant (5) 117*h*.
Ivocs, Laszlo, and Kiszely, Gyula Influence of the construction of the stopper of the teeming ladle on shutoffs at the Ozd Metallurgical Works (5) 117*b*.
Iwai, Hiroshi See Nakajima, Jun
Iwai, Shinichi See Okada, Kiyoshi
Iwai, Takao See Suzuki, Hideyuki
Iwamatsu, Seiichi MOS-type semiconductor devices, P (3) 76*h*.
Iwamoto, Masami See Beppu, Tatsuro
Iwamoto, Nobuya, Tsunawaki, Yoshiaki, Fuji, Masao, and Hattori, Takeshi Raman spectra of K_2O-SiO_2 and K_2O-SiO_2-TiO_2 glasses (3) 59*b*.
Iwamoto, Osamu See Hojo, Junichi
Iwasa, Mikio See Korenaga, Sadayoshi
Iwasa, Shozo See Tatara, Seiji
Iwasa, Tatsuru Chemical etching and fabrication of ridge waveguides on $Bi_{12}GeO_{20}$ single crystals (9) 227*a*.
Iwasaki, Hiroshi See Yamada, Tomoaki
Iwasaki, Yushio See Kodaira, Kohei
Iwase, Keizo See Yonezawa, Masatomo
Iwata, Masatoshi See Kato, Akio
Iwata, Minoru See Hiraoka, Hideo
Iwata, Shingo Heat of immersion of clays in water (9) 215*h*.
Iwata, Shohachi See Shirakashi, Shigeru
Iwata, Tadao See Maeta, Hiroshi
Iwata, Tomoji See Mizuno, Minoru
Iyengar, Rama Coating a glass fiber filament, P (9) 204*g*.
Izawa, Tatsuo See Kobayashi, Soichi
Izawa, Toichiro See Daimon, Nobutoshi
Izhak, A. P. See Goikhman, V. Yu.
Izmailovich, A. S., Troyanov, S. I., and Tsirel'nikov, V. I. Synthesis, crystal structure, and thermal stability of Hf monochloride (1) 46*j*.
Izumitani, Tetsuro See Asahara, Yoshiyuki ; Hosaka, Kosaku
Izumitani, Tetsuro, and Sagara, Hiroji Optical glass, P (9) 206*a*.

Jabsen, Felix S. Nuclear fuel rod frame with fuel rods positioned by movable member, P (5) 129*j*.
Jack, Harry R. S., and Nobbs, Arthur J. Toughening a glass sheet, P (3) 62*a*.
Jack, Harry R. S., and Richards, Peter H. Heat treatment of glass sheets, P (7) 162*b*.
Jackson, B. See Webster, R.
Jackson, Edward L. Reclamation of abrasive grit, P (1) 1*f*.
Jackson, F. D. See Whitworth, D. A.
Jackson, Fred L. Preparation of ceramic cordierite using hydrated $MgSiO_3$ and hydrated Al silicate (9) 210*i*.
Jackson, Julius, and Shaw, M. P. Ideal model for switching in thin VO_2 films (7) 171*d*.
Jackson, M. L. See Lee, S. Y. ; Sayin, Mahmut
Jacob, Bernarr A. See Galasso, Francis S. ; Veltri, Richard D.
Jacobs, J. See Roeppischer, H.
Jacobs, J. T. See Mehta, R. R.
Jacobson, Howard W., and Lewis, George L. Mullite fibrils, P (7) 167*g*.
Jacobson, L. A. See Petrovic, J. J.
Jaeckle, J., Piche, L., Arnold, W., and Hunklinger, S. Elastic effects of structural relaxation in glasses at low temps. (9) 200*e*.
Jaeger, Heinz Cooling cement, P (3) 54*c*; Cement grinding process with several classifiers (7) 150*b*.
Jaeger, Raymond E. Laser drawing of glass fiber optical wave guides (5) 107*d*. See Fleming, James W., Jr. ; Wemple, S. H.
Jaeger, Raymond E., and Miller, Thomas J. Particulate material and ceramic bodies therefrom, P (5) 127*j*.
Jagadeesh, M. S. See Das, V. Damodara
Jaganmohan, A. See Pandya, A. D.
Jagielinski, T., and Berkowski, M. Experimental data on the effect of Co ions on the anisotropy of $CdCr_2Se_4$ (1) 38*h*.
Jago, John J., and Billington, Colin Detection and reduction of roll bowing, P (9) 204*c*.
Jagusch, Karl-Heinz Use of computers to calculate the composition of optical glasses with certain properties (1) 13*a*.
Jahn, Juergen See Claussen, Nils
Jahn, Paul F. Wound graphite C body, P (3) 70*e*.
Jain, V. K. See Rai, Mohan
Jakel, Gus R. Fiber-reinforced concrete products, P (1) 3*j*.
Jakimavicius, J., Alisauskas, A., Duoba, A., and Sirvaitis, A. Relation between photocurrent relaxation time and concentration of impurities and recrystallization conditions in CdS sintered layers (1) 27*f*.
Jaklin, Hans Concrete containing sparingly soluble Ba compounds, P (7) 153*j*.
Jaklovszky, J. See Ionescu, R.
Jaklovszky, J., Ionescu, R., Nistor, N., and Chiculita, A. Grain size effect on the figure of merit of sintered solid solutions based on Bi_2Te_3 (1) 39*d*.
Jakubchik, V. P. See Gel'd, P. V.
Jalauria, Rajiv, and Mansingh, Abhai Threshold voltage and channel formation in chalcogenide glasses (1) 12*h*.
James, Benjamin Fuel element handling arrangement, P (3) 78*f*.
Jamieson, J. C. See Ozkan, H.
Janaviciene, N. See Levitas, I.
Jancke, H. See Engelhardt, G.
Janke, Dieter See Fischer, A. ; Fischer, Wilhelm A.
Janke, Dieter, and Fischer, Wilhelm Anton Parameters of partial electronic conductivity in ZrO_2(CaO) and the $ThO_2(Y_2O_3)$ solid electrolytes between 1200 and 1650°C (3) 90*g*.
Janocko, Michael A. See Gavaler, John R.
Jansen, Johannes F. M. Magmatic rocks as raw materials for the glass industry (9) 201*j*.
Jansen, M. Crystal structure of the Na oxopyroberyllate, $Na_6Be_2O_5$ (7) 180*h*.
Jansen, M., and Hoppe, Rudolf $KCoO_2$ and $RbCoO_2$ (7) 183*g*.
Jansen, Norbert See Bollmohr, Hermann
Janulis, W. I. See Miljukas, E. I.
Jarasiunas, K. See Vaitkus, J.
Jaray, Francis F. Glass-spinning apparatus, P (3) 61*i*.
Jarchow, Friedrich G. K., Haensel, Dietrich, Hempelmann, Willi, and Sturmath, Rainer Method and apparatus for cementing in the manufacture of double-pane insulating glass units, P (7) 162*h*.
Jarchow, O. See Klaska, R.
Jarczak, Klaus See Berger, Iris
Jarmalis, M. See Dagys, M.
Jasienska, St., Tomkowicz, D., and Dargel, L. X-ray diffraction study of $CaFe_2O_5$ (5) 147*i*.
Jasinski, John Colored glass, P (5) 111*h*.
Jastrzebski, Zbigniew Nature and Properties of Engineering Materials, B (7) 192*a*.
Jasutis, V. V. See Dapkus, L.; Paulavicius, A.
Jauch, Ewald H., and Heubach, Edward C. Glassmelting apparatus, P (3) 61*h*.
Jax, P., and Hums, H. Detection and surveillance of formation and propagation of cracks in ceramic materials by acoustic emission analysis (9) 222*c*.
Jayaraman, A. See Chandrashekhar, G. V.
Jayaraman, S., and Lee, Chi H. Observation of three-photon conductivity in CdS with mode-locked Nd:glass laser pulses (7) 184*a*.
Jean, Robert See Mercier, Henri
Jeandey, C., and Peretto, P. On-line Moessbauer effect and recoil defects in metallic Hf and HfO_2 (3) 90*d*.
Jebsen-Marwedel, Hans Possible cause of crack formation in glazes (3) 71*j*; Studies of color formation in natural silicate minerals (7) 187*h*.
Jeffers, P. E. Pyroprocessing clay for absorbent markets (1) 15*g*; Almar—a model of efficiency Automated bricklayer for ladle brick—"the idea that became a reality," (5) 114*a*; Automation aids production at brick plant with world's longest tunnel kiln (5) 114*b*; La Oruga SA—automated high core brick process Jaunjo SL—smooth system for brick production (5) 114*h*; Seques y Donadeu—automated roof tile line (5) 115*f*; Ceramica Casanovas—hot extrusion for fast drying (5) 129*f*; Salyt—flexible design accommodates many products (5) 130*i*; D. O. L. SA—a two-hour drying cycle (5) 132*e*; Dual-purpose stack cleaner an industry breakthrough (5) 132*f*; Finding clay takes planning (5) 134*a*; Science of responsible surface mining (5) 134*b*; Mining—no rape of the land (5) 134*e*; Underground mining clay for brick (5) 134*f*; Mechanization—a goal for the refractories industry (7) 165*b*; Future bright for masonry panels (9) 206*i*; Introduction of the 3-lb brick (9) 207*b*; New brick plant starts strong (9) 207*f*; New plant features "super sized" kiln (9) 207*g*; Real Brick—increases profit potential of brick production (9) 207*j*; Refractory specialties demand sophisticated material handling and preparation (9) 211*c*; Fuel—industry challenge of the 70's (9) 224*b*.
Jeffers, P. E., and Svec, J. J. There is an answer to the fuel problem—it's coal (5) 133*f*.
Jefferson, D. A., Tricker, M. J., and Winterbottom, A. P. Electron microscopic and Moessbauer spectroscopic studies of Fe-stained kaolinite minerals (7) 181*f*.
Jehra, W. Practical experience with a centrifugal pump (3) 78*i*; Comparative investigations of the grain-size distribution of clays in a gravitational and a centrifugal field, and the practical value of using a centrifuge (5) 131*a*; Experiences with a semiautomatic liquid-gas-fired shuttle kiln (9) 224*j*.
Jelenic, I. See Jernejcic, J.
Jelinek, James W., and Schmidt, Beuther L. TV monitoring of glass furnace operation (3) 59*i*.
Jelli, A. See Lambert, Emmanuel
Jenkins, Charles W. Reducing energy in the exhaust gas of blowing glass, P (1) 15*c*.
Jenkins, T. R. See Andon, R. J. L.
Jepsen, O. L. Cement strengths and their relation to cooling rate and type of cooler (7) 150*b*.
Jepson, W. B., and Rowse, J. B. Composition of kaolinite—an electron microscope microprobe study (5) 136*c*.
Jerke, John M. Optical and dimensional-measurement problems with photomasking in microelectronics (7) 171*e*.
Jernejcic, J., and Jelenic, I. Effect of autoclave treatment conditions on certain properties of asbestos cement (9) 194*c*.
Jerome, D. Y. See Chesneau, F.
Jeschke, Peter See Eschner, Axel ; Geck, Hans-Guenter
Jezowska-Trzebiatowska, B., Nowakowski, T., and Mrozinski, J. Semiconducting ternary oxides of Ir, Ti and Ca—magnetic and electrical properties (5) 110*b*.
Jibu, Yukio See Nakamura, Ryuji
Jindol, V. See Austin, L. G.
Jinnai, Kazuhiko See Honda, Hidemasa
Jirmanus, Naila S., Rindone, Guy E., and Bouchard, Andre C. New transparent low-thermal-conductivity glass compositions and lamp envelopes made therefrom, P (1) 14*j*.
Joens, Claus Take a second look at galvanometric recorders (9) 223*g*.
Johannessen, J. S., Spicer, William E., and Strausser, Y. E. Auger analysis of the SiO_2-Si interface (9) 226*i*.
Johannesson, R. T. See Lindstrom, Jan N.
Johansen, Vagn See Theisen, Kirsten
Johansson, G. I. Cutting device for plates of cleavable material such as tiles of brick or gritstone slabs of concrete or the like, P (9) 221*h*.
John, M. Characteristics of magnesite liners and MgO concretes (3) 64*e*.
Johnson, A. B. See Browning, J. S.
Johnson, Alan Edward See Burns, Robert
Johnson, Alfred H., Langston, Perry R., Jr., and Sunners, Brian Multilayer glass-metal package, P (7) 173*d*.
Johnson, Arthur F. Production and use of activated Al_2O_3, P (9) 226*a*.
Johnson, C. E. See Davis, H. T. ; Kingery, W. D.
Johnson, D. L. See Virkar, Anil V.
Johnson, D. W. See Gaskell, P. H.
Johnson, David W., Jr. See Gallagher, Patrick K.
Johnson, David W., Jr., Gallagher, Patrick K., Schrey, Frank, and Rhodes, Warren W. Preparation of high surface area substituted $LaMnO_3$ catalysts (7) 171*h*.
Johnson, Donald D. High-density thoria-silica- metal (III) oxide fibers, P (3) 69*e*.

Johnson, Donald R., and Sawers, James R., Jr. Joining diamond to metal, P (7) 149*h*.

Johnson, Dorthea M., and Lynch, James F. Critical Surveys of Data Sources: Ceramics, B (3) 94*a*.

Johnson, E. See Gray, J. M.

Johnson, Gerald K. See O'Hare, P. A. G.

Johnson, Gerald K., Grow, R. T., and Hubbard, W. N. Enthalpy of formation of Li_2O (7) 182*b*.

Johnson, H. See Lawn, B. R.

Johnson, H. R., Williams, R. H., and Mee, C. H. B. Anomalous photovoltaic effect in CdTe (3) 72*j*.

Johnson, James R. Engineer's perspective of our energy dilemma (5) 147*c*. See Close, James R.

Johnson, Jerry D. Refractory cellular product, P (7) 168*b*.

Johnson, Joseph E. See Chu, Ting L.

Johnson, Larry D. See Wilson, Hugh H.

Johnson, Marvin See Williams, Wendell S.

Johnson, P., and Robinson, W. G. Development of pottery bodies—electrical porcelain (7) 168*i*.

Johnson, R. Flint vs SiO_2 sand in pottery bodies (7) 169*c*.

Johnson, R. I. See Thornburg, D. D.

Johnson, Ralph T., Jr., Bielfeld, R. M., Knotek, M. L., and Morosin, B. Ionic conductivity in solid electrolytes based on Li aluminosilicate glass and glass-ceramic (9) 201*a*.

Johnson, Roger E. See Augustin, Eugene H.

Johnson, Vancliff Rare earth Mn silicides, P (9) 220*a*.

Johnson, W. C., and Stein, D. F. Additive and impurity distributions at grain boundaries in sintered alumina (3) 84*c*.

Johnston, C. D. Waste glass as a coarse aggregate for concrete (3) 60*d*.

Johnston, Richard G., and McCarthy, Gregory J. Crystal chemistry of the scheelite solid solutions in the systems $SrMO_4$-$Eu_2(MO_4)_3$ and $EuMO_4$-$Eu_2(MO_4)_3$ (M = MO, W) (5) 136*b*.

Jolley, Jack See Argoud, Maurice J.

Jolly, Stuart T. Accurate control during vapor phase epitaxy, P (5) 126*f*.

Jon, M. Characteristics of linings and MgO cements (9) 208*j*.

Jonas, A. J. Continued improvement in dryers (7) 177*j*.

Jones, A. L., Madigan, G. A., and Wilson, I. R. Dissolution and growth of Ba iodate crystals: I, Rates of dissolution and growth; II, Equilibrium solubility of Ba iodate (1) 37*c*.

Jones, B. F. See Lindley, M. W.

Jones, B. F., and Lindley, M. W. Strength, density, and N weight gain relations for reaction sintered Si_3N_4 prepared from fine Si powders (9) 212*a*.

Jones, Cecil M. Ball grinding ceramic wheel containing MnO_2, P (3) 49*d*.

Jones, Cecil R., Yoli, Alfred H., and Kirk, William F. Failed fuel detection for PWR, P (5) 129*e*.

Jones, Clifford K. See Gavaler, John R.

Jones, David H. See Bohanan, Charles S.

Jones, Dennis A. Lightweight aggregate, P (9) 197*c*.

Jones, Ivor W. β-Al_2O_3 ceramic tube, P (7) 167*c*.

Jones, Ivor W., and Miles, Lyndon J. Beta alumina ceramic, P (1) 28*a*.

Jones, J. Dennis See Brown, Earle C.

Jones, J. P. E. See Angel, B. R.

Jones, James W. S. See Henney, John W.

Jones, M. E. See Enoch, R. D.

Jones, R. G. Measurement of dielectric anisotropy using a microwave open resonator (9) 223*f*.

Jones, Robert A. See Creel, Theodore R., Jr.

Jones, Robert A., Romanowski, R. F., and Steinberg, I. H. New method for determing thermophysical properties of test specimens (3) 80*g*.

Jones, Robert E. Method and apparatus for forming brick packs with voids, P (3) 63*e*.

Jones, Stanley Peter, and Harrison, Peter G. Control systems for cyclic processes, P (9) 204*j*.

Jones, T. E. R., and Bullivant, S. A. Elasticoviscous properties of deflocculated china clay suspensions (1) 38*e*.

Jones, T. P. Melting point of Y_2O_3 in vacuum (7) 184*a*.

Jonscher, A. K. See Shahidi, M.

Jonsson, Bo R., Toll, Gunnar G., and Bodelind, Bo T. K. Surface-treated glass containers, P (1) 15*g*.

Jonsson, Erik A. See Fahlstroem, Per A. H. H.

Jordan, John F., and Lampkin, Curtis Sn oxide coating, P (9) 206*h*.

Jordao, Marco A. P., Manzo, Jose, and Angeleri, Frederico Cordierite based refractories (9) 208*c*.

Jose, V. R. See Bhat, C. V.

Jose, V. R., and Urnes, Sigmund X-ray diffraction studies of glasses in the system Na_2O-TiO_2-SiO_2 where Na^+ has been partially replaced by Ag^+ (1) 13*f*.

Joseph, Werner Properties of enamels for electrostatic powder application (7) 154*e*.

Josey, Verlon E. See Chapman, John H.

Josien, Francois-Andre See Zenaidi, Nezih

Jost, K. Crystal structure of alite and C_3S (3) 85*j*.

Jost, R. See Koestlin, H.

Joubert, Jean C. See Samaras, D. ; Shannon, R. D.

Jouenne, C. A. Treatise on Ceramics and Mineral Materials, B (9) 244*h*.

Juciene, V. See Matulionis, A.

Judd, Deane B., and Wyszecki, Guenter Color in Business, Science, and Industry, B (3) 93*i*.

Judd, Gary See Ansell, George S.

Judd, Mark S., and Nelson James A. Interaction of molten Al and MgO refractories (9) 210*i*.

Juerging, Klaus Development of prenickel-flashed sheet steel for direct-on white enameling (1) 4*g*.

Juhasz, Zoltan Water absorption of lime from moist air (3) 53*j*; Kinetics of mechanochemical reactions (5) 141*e*.

Jung, Bruno Casting molds suitable for use in the ceramic industry, P (5) 124*g*.

Jung, Chang Ju Role of added metal oxide in the adhesion mechanism of low melting glass to metal seals (3) 59*g*; Mechanical properties of low-melting glasses in the system PbO-B_2O_3-V_2O_5 during crystallization of heat treatment (5) 108*e*.

Jung, Hermann Amphoras, drinking vessels, and lamps—exhibition at Essen of Pompeian life and art. Ancient cargo ships carrying ceramics—hundreds of wrecks between Marseille and Bodrum (southwest Turkey) (5) 97*g*.

Jung, Manfred Refractory cements—comparison of the properties and possible applications of high temp. alumina cements, cements containing spinel, and cements containing Ba aluminate (3) 53*c*.

Jungmann, Axel Nuclear reactor protective system, P (5) 129*a*.

Jurado Egea, J. R. Electrical properties of glass (3) 57*b*. See Capel, F. ; Fernandez Navarro, Jose Maria

Jurado Egea, J. R., and Fernandez Navarro, Jose Maria Electrical measurements in binary V glasses (3) 57*a*; Microstructural aspects of V binary glasses and their possible correlation with electrical measurements (3) 58*c*.

Juranic, N. See Vucelic, D.

Juranic, N., Karaulic, D., and Vucelic, D. Apparatus for simultaneous determination of electrical conductivity and thermogravimetric curves of solid systems (3) 79*d*.

Kabaev, M. See Guoga, V.

Kabakova, I. I. See Pisareva, N. V.

Kabakova, I. I., Degtyareva, E. V., Grigor'ev, I. V., and Rabinovich, M. A. Corundum refractories from technical-grade Al_2O_3 (1) 16*f*.

Kabakova, I. I., Pisareva, N. V., Degtyareva, E. V., and Shapiro, Ya. Z. Production of thick heat-resistant corundum refractories for hf induction furnaces (1) 18*j*.

Kabanov, N. P. See Glikin, S. M.

Kabanov, Nikolai P., Shchukin, Vitaly S., Makhalov, Sergei F., and Knyazev, Yu. A. Apparatus for cutting shapes out of glass sheets, P (3) 60*g*.

Kabashnyi, N. P. See Vasil'chenko, V. S.

Kabayama, Takahiko Synthesizing cubic crystal structure BN, P (9) 220*c*.

Kabdebon, Imre Kiln development at the Sajoszentpeter glass plant (5) 107*c*.

Kabelka, H., and Kuzmany, H. Brillouin scattering from acoustoelectric domains in ZnO for various light wavelengths (9) 216*i*.

Kachare, A. H., Spitzer, W. G., Kahan, A., and Euler, F. K. Ion-implanted N in GaAs (7) 183*e*.

Kacsalova, Lidia, and Boszilkov, Vladimir Use of perlite in the mfg. of floor tiles (3) 72*a*.

Kaczmarek, Edmund Noise reduction in the cement and lime industry (7) 152*e*.

Kadel, H. P. Two and a half years' experience with the 3000 tons/day Dopol kiln with planetary cooler at the Schelklingen plant (5) 102*g*.

Kadir, M. R., and Hendry, A. W. Behavior of brickwork infilled frames under racking load (5) 114*c*.

Kadomtseva, A. M. See Zalesskii, A. V.

Kadono, Atsuro See Saeki, Osamu ; Tani, Tetsuro

Kaes, Hans Herbert Varistor and dielectric properties of phosphate glasses with a high Ag content and glass-ceramics (7) 160*a*; Inorganic vitreous detector material, P (7) 173*a*. See Broemer, Heinz

Kaes, Hans Herbert, and Staaden, Hans Ag-containing semiconductive glass of improved resistivity and secondary emission, P (3) 62*e*.

Kagawa, Hiroshi, and Senoo, Keiji Na-S storage battery, P (9) 220*c*.

Kahan, A. See Kachare, A. H.

Kaharu, Rikuo See Imai, Hiroyuki

Kahn, A., Boilot, J. P., and Thery, J. Structure and origin of nonstoichiometric β-Na gallate (9) 240*c*.

Kahn, A. R. See Kirk, D. L.

Kahn, J. S. High-pressure phase transformation of $CaSO_4$ (anhydrite) during a nuclear explosion (1) 40*b*.

Kahng, Dawon, and Ligenza, Joseph R. Charge effects in doped SiO_2, P (7) 172*j*.

Kahnke, Dieter See Keib, Heinz

Kaibicheva, M. N., Kamenskikh, V. A., and Gilev, Yu. P. Properties and structure of periclase-yttria bodies (9) 216*b*.

Kaibicheva, M. N., Platonov, B. P., Platonov, Yu. B., and Kashcheev, I. D. Aluminosilicate bodies in Cr-Al phosphate binders (3) 63*g*.

Kaibyshev, O. A. See Landa, M. I.

Kaila, M. M., and Goldsmid, H. Thermomagnetic properties of InSb-In films (3) 75*e*.

Kainarskii, I. S. New developments in refractories for metallurgy and glassmaking (1) 18*j*. See Degtyareva, E. V. ; Orlova, I. G.; Safronova, I. P.

Kainarskii, I. S., Degtyareva, E. V., and Safronova, I. P. Effect of method and degree of grinding on the kinetics of grinding and washing off of SiC (1) 17*d*.

Kainarskii, I. S., Karaulov, A. G., and Kalita, G. E. Plaster molds for the production of refractory ceramics (5) 101*a*.

Kairbaeva, Z. K. See Zubakov, S. M.

Kaiser, Hans See Kratel, Guenter

Kaiser, Harold D., and Nufer, Robert W. Ceramic substrate, P (1) 28*d*.

Kaiser, Manfred Behavior of sillimanite blocks in the doghouse region of a Pb glass tank (7) 164*b*.

Kaiser, Peter, and Astle, H. W. Low-loss single-material fibers made from pure fused silica (5) 107*h*.

Kaji, Gentaro, Tasaki, Akira, and Siratori, Kiiti Magnetic annealing in Li ferrite-manganite (3) 89*j*.

Kajiwara, Takichi Production of bottom pouring runner bricks by vibration method (3) 67*c*; Hearth constructed in 30-ton electric furnace by vibration method (7) 165*e*.

Kajtoch, A. See Lis, J.

Kakegawa, Kazuyuki See Shirasaki, Shinichi

Kakegawa, Kazuyuki, Mohri, Junichi, Takahashi, Koichiro, and Yamamura, Hiroshi Compositional fluctuation of $Pb(Zr_x,Ti_{1-x})O_3$ near tetragonal-rhombohedral phase-boundary (9) 227*f*.

Kakegawa, Kazuyuki, Watanabe, Kiyoshi, Mohri, Junichi, and Yamamura, Hiroshi Fluctuation of composition of $Pb(Zr_x,Ti_{1-x})O_3$ (5) 139*c*.

Kakehi, Toshihiro See Kimura, Morihiro

Kakei, Mitsuo, Nishida, Keijiro, Kasahara, Tadayoshi, and Shimabayashi, Masao Vapor deposition apparatus, P (5) 128*i*.

Kakharov, V. K. See Poddubnyi, I. M.

Kakhramanov, K. Sh. See Zargarova, M. I.

Kakihana, Hidetake See Seko, Maomi

Kakkar, S. S. See Zadgaonkar, A. S.

Kakubari, Shuichi See Takahashi, Yasunori

Kala, T. See Frumar, M.

Kalafus, Edward F. See vanGils, Gerald E.

Kalashnikov, N. P. See Bochek, G. L.

Kalashnikova, I. G. See Ivanov, I. A.

Kalb, Sabine See Engelhardt, Guenther

Kaldon, R. C. See Chang, Luke L. Y.

Kalenskii, Yu. G. See Shakhov, N. I.

Kalikhman, V. L., Kasiyan, I. M., and Mikhailyuk, I. P. Mechanism of the electrical conductivity of quasibinary $MoSe_2$-$TaSe_2(Mo_{1-x}Ta_xSe_2)$ alloys (1) 26*f*.

Kalinichenko, I. I. See Vokhmyakov, A. N.

Kalinin, A. N., Gel'fand, Ya. E., and Frenkel, Yu. G. Cement plants and computer control (5) 98*j*.

Kalinin, G. M. See Ivanov, V. M.

Kalinin, Yu, K. Expanding the raw material base for Shungizit (5) 99*b*.

Kalinina, A. M. See Filipovich, V. N.

Kalinina, N. G. See Samsonov, G. V.

Kalinina, R. I. See Moshkina, M. K.

Kalinkin, I. P. See Stepanova, N. D.

Kalinkin, V. I. See Kuzovlev, A. K.

Kalinkina, I. N. See Meshcheryakov, V. F.

Kalinovskii, V. V. See Pavlov, V. F.

Kalishevich, G. I. See Sudakova, N. P.

Kalita, G. E. See Kainarskii, I. S.

Kalita, V. S. See Kortnev, V. V.

Kalmykov, V. A. See Materikin, Yu. V.

Kal'naya, G. I. See Murashko, N. I.

Kal'nev, N. A. See Magden, I. N.

Kalugin, G. A. See Fain, I. A.

Kalugina, L. V., and Shmakov, V. D. Large ceramic blocks from loams (5) 114*i*.

Kalyoncu, R. S. See Tadros, M. E.

Kamakshaiah, S., and Rau, R. S. N. Delay characteristics of a simple triggered vacuum gap (3) 72*f*.

Kamaritskii, B. A. See Andrianov, K. A.

Kamata, Kiichiro See Nakajima, Tadashi

Kamel, Shiro, and Hosaka, Takuo Serviceability of gunning materials (3) 68*i*.

Kameishi, Yoshihiko See Irie, Toshio

Kamel, Abdel H. Strength of autoclaved portland blast-furnace cement (5) 101*e*.

Kamenetskii, S. P. See Fain, I. A.

Kamenir, E. A. See Basov, A. M.

Kamenskikh, V. A. See Kaibicheva, M. N.

Kameyama, Tetsuya See Naka, Shigeharu

Kamigaito, Osami See Kamiya, Nobuo

Kamigaito, Osami, Masaki, Hideyuki, Oki, Masami, and Suzuki, Masatosi Resistor for spark plug, P; Resistors for ignition plugs, P (3) 77*d*.

Kamigaito, Osami, and Oyama, Yoichi Ceramics of Si_3N_4, P (1) 21*d*.

Kamilov, I. K., Shakhshaev, G. M., Allev, Kh. K., and Musaev, G. G. Thermal conductivity of ferrites in the vicinty of magnetic phase transitions (9) 241*a*.

Kaminaga, Yoichi See Furumi, Koichi

Kaminskas, A. New effective materials for thermal insulation in the U.S.S.R. (5) 118*b*.

Kaminskii, A. A. See Belabaev, K. G.

Kaminskii, A. A., Bogomolova, G. A., and Kevorkov, A. M. Spectroscopic study of crystals with garnet structure (5) 145*a*.

Kaminskii, A. A., Koptsik, V. A., Maskaev, Yu. A., and Naumova, I. I. Stimulated emission from Nd^{3+} ions in ferroelectric $Ba_2NaNb_5O_{15}$ crystals ("Banana") (1) 45*h*.

Kaminskii, A. D., and Kozhin, V. I. Stabilizing the suction of open-circuit ball mills increases their productivity (1) 3*e*.

Kamiya, Kanichi, and Sakka, Sumio Structural change of Ag-Cl particles in photochromic glass by heating at low temps. (7) 159*h*.

Kamiya, Nobuo, Oyama, Yoichi, and Kamigaito, Osami Si_3N_4 solid solution in the ternary system Si_3N_4-AlN-SiO_2 (7) 186*j*.

Kamm, K. Conveying and loading installation for clinker and cement at the Limhamn cement plant, Sweden (5) 98*f*.

Kammann, W. Screen printing machine, P (1) 24*h*.

Kammerer-Grothaus, Helke Polychrome Roman architectural brickwork—investigated at the "Deus Rediculus" (3) 50*b*.

Kanai, Masao See Harigaya, Hiroshi

Kanamaru, F. See Tsunashima, A.

Kanamitsu, Shozo See Nishida, Shinji

Kanaoka, Shigeto See Nishiyama, Tsutomu

Kanazawa, Takafumi See Monma, Hideki

Kanazawa, Takafumi, and Monma, Hideki Amorphous Ca phosphate (9) 194*a*.

Kanazawa, Takafumi, Umegaki, Takao, and Wasai, Eiji Preparation conditions of $Mg_3(PO_4)_2$-$4H_2O$ octahydrate and its thermal change (7) 152*f*.

Kandaurova, G. S., Deryagin, A. V., and Lagutin, A. E. Statistical character of magnetic properties of single-crystal particles in highly anisotropic ferromagnetics (1) 45*i*.

Kane, James, and Schweizer, Hanspeter Forming transition metal oxide films on a substrate and photomasks therefrom, P (3) 76*b*; Depositing transparent electrically conductive SnO_2 coatings on a substrate, P (7) 172*b*.

Kane, William T. See Galusha, Richard E.

Kaneki, Noriaki, Hara, Hiroshi, Shimada, Koji, and Shimizu, Takashi Effect of atm on resistivity of WO_3 ceramics (9) 230*g*.

Kaneko, Shoji, and Imoto, Fumio Synthesis of fine-grained $BaTiO_3$ by hydrothermal reaction (1) 46*j*.

Kaneko, Tadao See Omura, Itiro

Kaneko, Teruo See Ichimura, Takeo

Kaneko, Yasuhisa See Niimi, Itaru

Kaneko, Yasuhisa, Komiyama, Yoshiro, Kondo, Katsumi, and Noda, Fumiyoshi Metal-containing ceramics, P (5) 122*c*.

Kanemaru, Toyonosuke, Yamazoe, Hiroshi, and Ichikawa, Hiroshi C-metal composite material, P (9) 212*e*.

Kaneno, Masayuki See Kobayashi, Kazuo

Kaneta, Kyoichi See Kitayama, Minoru

Kano, Saburo, Sasaki, Tatsuo, and Kobayashi, Toshihiro Suspension-type preheating system for powdery raw materials, P (3) 82*c*.

Kant, Parmendu See Krishnaji

Kao, K. C. See Petrillo, G. A.

Kaplan, A. Yu. See Kutateladze, K. S.

Kapolnai, Ivan Sheet glass mfg. in the Comecon countries (3) 59*i*.

Kapur, P. C. SiO_2 refractories—state of the technology (3) 68*j*.

Kara, I., Vanek, M., and Dolenskii, A. Firing graphite-grog samples in a reducing medium without coke charging (9) 209*c*.

Karaim, Teodor See Klement, Karel

Karapchanski, N. See Stamenov, St.

Karapchanski, N., and Tsanovski, St. Heavy concretes with iron ore and wastes as coarse aggregates (3) 51*h*.

Karas, G. E. See Boricheva, V. N.

Karas, G. E., Ivanova, M. Ya., Fraifel'd, M. S., and Guzman, I. Ya. SiC refractories with nitride binders (3) 68*i*.

Karasek, F. W. Detection limits in instrumental analysis (1) 32*e*; Fluorescence spectroscopy (7) 176*c*; MAD—a data system for instrumental analysis (9) 223*e*.

Karasev, A. I. Preparation of technical ZrB_2 by the carbothermic reductionof mixtures of Zr and B oxide (1) 18*e*.

Karaseva, M. D. See Rabinovich, M. A.

Karasik, V. L. See Shcheglov, S. I.

Karastoyanova, El. See Stoicheva, V.

Karasz, F. E. See Simon, J.

Karataev, V. V., Mil-vidskii, M. G., Nemtsova, G. A., and Rakov, V. V. p-T-x diagram of the system In-As (5) 144*i*.

Karaulic, D. See Juranic, N.

Karaulov, A. G. Rammed masses from ZrO_2 and H_3PO_4 (5) 119*j*. See Kainarskii, I. S.

Karaulov, A. G., Grebenyuk, A. A., Sudarkina, T. E., and Eltysheva, A. A. Rammed massed from ZrO_2 using phosphoric acid (1) 19*e*.

Karaulov, A. G., and Rudyak, I. N. Sintering of ZrO_2 with Y_2O_3 (3) 91*e*.

Karaulov, A. G., Rudyak, I. N., Grushevaya, T. F., and Palashenko, V. I. ZrO_2-based rammed materials and their testing in induction furnaces (1) 20*h*.

Karaulov, A. G., and Tolstaya, V. Ya. Mortar for laying zircon materials (1) 18*i*.

Karayakin, V. A., Turusheva, G. Yu., Nagornova, E. A., and Kruchinin, Yu. D. Glass-ceramic materials from fly ash of heat and electric power plants (9) 200*c*.

Karbanov, S. G., Viktorovskii, I. V., and Baidakov, L. A. Magnetic susceptibility of glasses and crystals of the system Ge-Se-Te (3) 57*j*.

Karimov, R. Kh. See Panteleeva, G. V.

Karimov, Yu. S. Disordered state in two-dimensional ferromagnetic substances (1) 37*c*.

Karklit, A. K. See Guzman, I. Ya.

Karklit, A. K., Kuznetsov, Yu. D., Velikin, B. A., and Davydov, L. M. Rammed linings of 160-ton steel-pouring ladles (5) 119*i*.

Karklit, A. K., Lazovskii, V. A., Levchuk, V. V., and Morgun, L. V. Compositions for guniting boiler furnace screens (3) 64*f*.

Karklit, A. K., Materikin, Yu. V., Petrova, E. V., and Sturman, V. K. Periclase refractories for the casting of steel (1) 18*b*.

Karkowski, Abdon Fly ash—valuable raw materials for production of lightweight aggregates (7) 151*d*.

Karlsson, K. H. Comments on "Equilibrium studies of Fe in alkali phosphate glasses" (3) 55*i*.

Karmazin, V. I. See Gorobets, L. Zh.

Karpinos, D. M. See Volkogon, L. M.

Karpinos, D. M., Grosheva, V. M., Morozov, Yu. I., and Il'chenko, A. I. Ceramics reinforced with mullite single crystals (1) 22*g*.

Karpinos, D. M., Mikhashchuk, E. P., Efimov, G. V., and Pavlikov, V. N. Thermal stability of dense grog material reinforced by ceramic filaments (1) 20*h*.

Karpinos, D. M., Totskaya, G. A., Grosheva, V. M., and Il'chenko, A. I. Cr_2O_3-based ceramics reinforced with mullite crystals (1) 16*g*.

Karpova, K. S. See Chernyak, L. P.

Karpova, L. N. See Orlov, Yu. F.

Karras, G. E. See Orlova, I. G.

Kartofel'nikova, L. A. See Bulavin, I. A.

Kasahara, Tadayoshi See Kakei, Mitsuo

Kasahara, Yukio, Nitta, Tsuneharu, and Hayakawa, Shigeru Electrical and magnetic properties of Fe-Ni sulfide ceramics (7) 181*b*.

Kasai, Kazutomo See Tomita, Chuji

Kase, Yuji See Takahashi, Takehiko

Kasennyi, V. G., and Dzhvarsheishvili, A. G. All-purpose silicate rock paste of inorganic material based on water glass and Na hexafluorosilicate (1) 1*i*.

Kashcheev, I. D. See Kaibicheva, M. N.

Kashcheev, I. D., Mamykin, P. S., and Bartuska, Miloslav Corrosion of mullite ceramics by an Na-containing silicate melt (9) 208*d*.

Kashcheev, I. D., Mamykin, P. S., Emlina, M. E., and Koksharov, V. D. Sintering of Nd_2O_3 (5) 145*g*.

Kashio, Shigetora See Morita, Kenichi

Kashiwada, Shigeru See Morioka, Yoshio

Kashper, Zh. I. See Komskaya, M. S.

Kasimov, G. G., Vovkotrub, E. G., Krylov, E. I., and Rozanov, I. G. Synthesis and study of 3d-series element orthoniobates (5) 145*j*.

Kasiyan, I. M. See Kalikhman, V. L.

Kaspar, Jan See Bicik, Vladislav

Kasper, Horst M. See Tell, Benjamin

Kasymova, S. S. See Nemilov, S. V.

Katada, Tadashi, Sugita, Kiyoshi, and Mizutani, Yoshizo Refractories technology at Nippon Steel Corp.—its role and present state (7) 166*c*.

Kataoka, Haruki See Matsushita, Toru

Katayama, Kaoru, Yamada, Tamotsu, and Iida, Takaya Crystal growth of α-hemihydrate gypsum by dehydration of dihydrate gypsum (7) 150*d*.

Katkova, K. S. See Guloyan, Yu. A.

Kato, Akio See Hojo, Junichi ; Nagano, Masamitsu ; Suyama, Yoko ; Takeuchi, Harunori

Kato, Akio, Iwata, Masatoshi, Hojo, Junichi, and Nagano, Masamitsu Fine TiN powders by the vapor phase reaction of $TiCl_4$-NH_3-H_2-N_2 system (3) 87*g*.

Kato, Chuzo Coloring composites, P (7) 178*h*.

Kato, Etsuro See Yamaguchi, Akira

Kato, Etsuro, and Murase, Yoshio Electric resistivity of C composite sintered material, XIII: Influence of atm on electric resistance of various C powders (3) 73*f*.

Kato, Hajime See Uchikawa, Hiroshi

Kato, K. See Tamura, S.

Kato, K., Kawada, I., Kimizuka, N., and Katsura, T. Crystal structure of $YbFe_2O_4$ (5) 136*h*.

Kato, Kazuo, and Sakai, Yoshihiro Calorimetric studies of inorganic dental materials (9) 214*e*.

Kato, Masanori See Hayashi, Koya ; Mizutani, Nobuyasu

Kato, Shinich See Toda, Kohji

Kato, Shuzo See Iga, Takeo

Kato, Shuzo, Iga, Takeo, Hatano, Shogo, and Isawa, Yuichi Effects of synthetic conditions of $NH_4AlO(OH)HCO_3$ on sinterability of Al_2O_3 obtained by thermal decomposition (9) 230*h*; Synthesis of $NH_4AlO(OH)HCO_3$ (9) 240*i*.

Kato, Shuzo, Iga, Takeo, and Sarai, Hiromi Rearrangement process in the initial-stage sintering of vapor phase-decomposed alumina (1) 44*b*.

Katorgin, G. M See Yakovleva, T. I.

Katorgin, G. M., Sennov, O. N., and Zeliger, G. Ya. Determination of the minimum weight of specimens during the sampling of refractory clays and kaolins (9) 222*e*.

Kats, E. I. Behavior of nematic liquid crystals in a rotating magnetic field (1) 35*d*.

Kats, M. E., and Kvyatkovskaya, K. K. Role of fillers in bodies made of cast ceramic tile (1) 23*f*.

Katsevich, Leonid S. See Popov, Alexandr N.

Katsigianopoulos, John S. See Merrin, Seymour

Katsube, Takahiro See Suzuki, Junichi

Katsuhara, Masahisa, and Yamazaki, Sadayuki Problems with hot pig iron runners of blast furnace (3) 67*b*.

Katsura, T. See Kato, K.

Katz, Bruno See Grantham, LeRoy F.

Katz, Helmut See Hofmann, Horst

Katz, R. Nathan, and Coble, R. L. Effect of Nd on dislocation velocity in CaF_2 (9) 230*d*.

Knuders, Herbert J., and Vincent, Thomas C. Substituted halophosphate phosphors, P (3) 77*i*.

Kaup, Friedel See Warnke, Heinrich

Kaup, Friedel, and Warnke, Heinrich Electrophoretic enameling of ferrous articles, P (5) 103*i*.

Kausay, Tibor Fine-grain content of crushed stone products (5) 130*a*.

Kaushanskii, V. E., and Timashev, V. V. Electron structure and properties of cations of certain orthosilicates (9) 231*a*.

Kavaliauskas, J., and Sileika, A. Kramers-Kronig analysis of the electrical reflectance spectra of InP (1) 41*i*.

Kavanagh, David C. See Brooke, Peter H.

Kavetskii, V. S. See Dzampaev, Kh. S.

Kawada, I. See Kato, K.

Kawagoe, Hiroto See Sakamoto, Takashi

Kawagoshi, Sakae, and Funabiki, Kunio Forming γ-Al_2O_3 coating on refractory article, P (7) 167*i*.

Kawai, Teruo See Moriya, Yoshiro

Kawamata, Tadashi, Hirota, Eiichi, and Terada, Yukio Ferromagnetic Cr oxide, P (9) 219*i*.

Kawamata, Tadashi, Mihara, Toshihiro, Terada, Yukio, and Hirota, Eiichi S-modified ferromagnetic Cr oxide, P (9) 220*c*.

Kawami, Yoji See Torikai, Eiichi

Kawamoto, S. K. See Baird, R. J.

Kawamoto, Yoji See Inoue, Masayoshi ; Tsuchihashi, Shoji

Kawamoto, Yoji, Agata, Masamichi, and Tsuchihashi, Shoji Structure of As_2S_3-Tl_2S and As_2S_3-Ag_2S glasses (1) 11*g*.

Kawamoto, Yoji, and Nishida, Masaru Ionic conduction in As_2S_3-Ag_2S, GeS_2-GeS-Ag_2S, and P_2S_5-Ag_2S glasses (9) 201*a*.

Kawamura, Junichi See Hamamoto, Fujio

Kawamura, Masao, Ito, Kazuhiro, Morioka, Makoto, and Ono, Yuichi Epitaxial growth process for compound semiconductor crystals in liquid phase, P (9) 219*h*.

Kawamura, Mitsunori Comments on "Predictability gap between science and technology of cements: II, Physical and mechanical behavior of hydrated cements" (5) 98*c*.

Kawano, Toshio, Mori, Takaro, and Kubota, Hachiro Expansive cement additive, P (7) 153*a*.

Kawasaki, Shigetake, Owa, Masaru, Hayano, Ichiro, and Akiya, Takaji Purification of NaOH, P (3) 83*g*.

Kay, B. D., and Low, Philip F. Heats of compression of clay-water mixtures (5) 140*d*.

Kayal, P. B. See Mukerji, J.

Kayama, Isao See Fujita, Kazumi

Kazak, V. F., Domanskii, A. I., Boikova, A. I., and Ilyukhin, V. V. Crystal aspect of polymorphic transformations in dicalcium silicate (9) 228*h*.

Kazak, V. F., Lyutin, V. I., Ilyukhin, V. V., and Belov, N. V. Crystal structure of monoclinic acid Na, Ca-orthosilicate (9) 228*c*.

Kazanskaya, E. N. See Korneev, V. I.

Kazarinova, N. G., Viting, L. M., and Reznitskii, L. A. Physicochemical studies of easily fusible solvents in solvents-ferrite systems (9) 237*d*.

Kazi, A. Quantitative fabric analysis of Drammen clay using X-ray diffraction technique (9) 238*f*.

Kazmierowicz, Casimir W. Constant temp. coeff. thick-film thermistor, P (5) 127*a*.

Kazvini, N. D. See Kirichok, P. P.

Keat, Paul P. Graphite containing metal bonded diamond abrasive wheels, P (5) 97*e*.

Keck, Donald B. See Olshansky, Robert

Keck, Donald B., and Schultz, Peter C. Planar optical wave guides, P (5) 113*f*.

Keeffe, William M. Metal halide discharge lamp having heat reflective coating, P (9) 205*e*.

Keem, J. E. See Chandrashekhar, G. V.

Keem, J. E., and Honig, J. M. Seebeck measurements and their interpretation in high-resistivity materials—semiconducting V_2O_3 (1) 27*h*.

Keenan, Joseph A. Determination of parts per million levels of Th in optical components by X-ray fluorescence (3) 80*a*.

Keer, H. V. See Bodas, M. G.

Keer, H. V., Bodas, M. G., Bhaduri, A., and Biswas, A. B. System Mn_3O_4-$MgAl_2O_4$ (5) 146*c*.

Keer, H. V., Deenadas, C., Rao, R. V. G., and Biswas, A. B. Thermal analysis of ferroelectric transition in potassium ferrocyanide trihydrate (3) 75*j*.

Kehr, William D. See Cole, Thomas R., III

Keib, Heinz, and Kahnke, Dieter Apparatus for feeding particles of glass into crucibles for extrusion of glass filaments, P (7) 161*a*.

Keib, Heinz, and Schlachter, Fredo Apparatus for making a nonwoven web from synthetic fibers, P (1) 13*b*.

Keienburg, R. See Funke, G.

Keler, E. K. Solid state reactions in oxide systems (3) 91*j*. See Isupova, E. N.

Kelin, Yu. I. See Baranova, T. F.

Keller, Hans Loffar, and Mueller-Buschbaum, Hanskarl Study of $Ag_6(SO_4)(SiO_4)$ (9) 240*e*.

Keller, Joseph A., and Spitz, Robert T. Gypsum calcination, P (9) 197*a*.

Keller, W. D., and Hanson, Robert F. Dissimilar fabrics by SEM of sedimentary vs hydrothermal kaolins in Mexico (5) 137*i*.

Keller, Wolfgang Crucible-free zone melting of semiconductor crystal rods, P (3) 76*g*; Monocrystalline semiconductor material, particularly Si, with adjustable dislocation density, P (7) 173*d*; Apparatus for crucible-free zone melting of semiconductor crystal rods including oscillation damping material, P (9) 219*a*; Apparatus for positively doping semiconductor crystals during zone melting, P (9) 219*b*. See Reuschel, Konrad

Keller, Wolfgang, Krueger, Joachim, Ropers, Johann, and Schabert, Hans P. Nuclear power plant with a safety enclosure, P (5) 129*a*.

Keller, Wolfgang, Muehlbauer, Alfred, and Reuschel, Konrad Oriented semiconductor monocrystalline rods, P (3) 76*j*.

Kellerman, V. Yu. See Takher, E. A.

Kellner, Walter See Goetzberger, Adolf

Kelly, Alison Story of Wedgwood, B (3) 96*h*.

Kelly, Donald H. See Bruen, Charles P.

Kelly, E. Sampling apparatus to extract samples automatically and continuously, P (7) 224*c*.

Kelly, Edward L. See Roberson, Glenn A., Jr.

Kelly, Michael G. See Newman, Irvin

Kelly, Roger See Giani, Enrico

Kelm, R. W., Jr. See Chu, T. L.

Kelsey, P. S. Method of and apparatus for making an appar-

ently unitary composite facing brick. P (9) 207*h*.
Kemeny, Istvan Calcareous clays for the production of tile (5) 122*h*.
Kemlage, Bernard M. See Broadie, Robert W.
Kemlage, Bernard M., Woodall, Jerry M., and Wuestenboefer, William C. Two-stage heteroepitaxial deposition process for GaP/Si. P (9) 220*e*.
Kempe, K. H. See Kuennecke, M.
Kempter, K. See Harms, H.
Kendall, E. J. M., and Tadros, L. B. Temp. dependence of low-freq. noise in avalanche reference diodes (1) 27*d*.
Kendall, K. Control of cracks by interfaces in composites (3) 54*h*.
Kendrick, Gary R. See Sauder, Robert A.
Kenisarin, M. M., and Chekhovskoi, V. Ya. Equilibrium temp. between solid and liquid phases of Y oxide (9) 231*f*.
Kenke, K. See Shrader, R.
Kennard, F. L., Bradt, R. C., and Stubican, V. S. Mechanical properties of the directional solidified MgO-$MgAl_2O_4$ eutectic (5) 141*i*.
Kennedy, C. R., and Bandyopadhyay, G. Thermal-stress fracture and fractography in UO_2 (5) 146*i*.
Kennedy, C. R., and Bradt, R. C. Abrasive impact of binary alkali silicate glasses (5) 135*e*.
Kennedy, John H., and Akridge, James R. Inhibition of sintering of beta Al_2O_3 by V_2O_5 (7) 183*b*.
Kennedy, Kurt D. Physical vapor deposition, P (3) 77*a*.
Kennedy, Kurt D., and Scheuermann, Glen R. Coating a substrate to provide a Ti or Zr nitride or carbide deposit having a hardness gradient which increases outwardly from the substrate, P (1) 28*e*.
Kennedy, Richard W., and Tefft, Edward G. Glass passivated gold diffused SCR pellet, P (7) 161*j*.
Kenney, G. B. See Hasselman, D. P. H.
Kennison, Robert E., and Stetson, Wendell J. Substrate cleaning process, P (1) 29*h*.
Kent, Alan H., and Fell, Peter H. In-line coupling of two lengths of linear optical wave-guide elements, P (7) 162*e*.
Kenty, J. L. Limitations of the lattice matching theory in predicting GaAs/BeO epitaxy (3) 74*b*.
Kenworthy, Jeffrey Stuart, Morton, Michael John, and Taylor, Michael David Al_2O_3 fiber, P (7) 166*j*.
Keren, R., and Shainberg, I. Water vapor isotherms and heat of immersion of Na/Ca-montmorillonite systems: I, Homoionic clay (5) 147*g*.
Kerkhof, Frank Fracture mechanics analysis of damage to glassware (1) 8*i*.
Kerko, David J. See DeMunn, Clark V.
Kerr, David S. See Sortwell, Edwin T.
Kerrick, D. M. See Slaughter, J.
Kersey, R. Fine line circuitry from photoprintable compositions (1) 26*a*.
Kerssik, S. D, Orlov, Yu. F., and Kuzin, I. A. Composition of condensates formed during in vacuo vaporization of mixed selenides of Pb and Sn (9) 227*d*.
Kerstan, Horst Japan and its ceramic traditions. Account of a student tour (9) 193*e*.
Kerstan, Walter, Limpens, Mathias J., and Heuser, Hans J. Determination of the SiO_2 content of ceramics by atomic absorption analysis (5) 131*e*.
Kersting, Arno See Reuschel, Konrad
Keshishyan, T. N., Smirnova, O. M., Fainberg, E. A., and Varshal, B. G. Effect of Al_2O_3 on the electrical conductivity of silicate glasses containing two alkali metals (5) 105*e*.
Keski, James R. See Rankin, D. Thomas
Keskin, O., and Davies, S. R. Effect of torsion on multistory structures (5) 114*e*.
Kessel, H. See Fickel, A. F.
Kessler, F. R. See Dettmer, K.
Ketchow, Doris R. Ge-doped GaAs layer as an ohmic contact. P (3) 76*b*.
Keune, W., and Camara, A. Sette Moessbauer effect and X-ray observation of magnetic-field-induced crystallographic texture in antiferromagnetic FeS powder (1) 42*g*.
Kevorkov, A. M. See Kaminskii, A. A.
Khabakova, I. I. See Degtyareva, E. V.
Khabarova, L. I., Noskova, O. S., Tyurin, V. M., and Voevodina, Z. A. Effect of surface-active agents on a stratified furnace charge (1) 17*f*.
Khadzhi, I. P. See Nesterchuk, N. I.
Khadzhi, V. E. See Drits, V. A.
Khadzhiiska, St. See Popova, Ek.
Khaimenov, A. P. See Rychkov, V. P.
Khainer, S. P. See Galiakberov, R. G.
Khait, O. D. See Senkevich, N. A.
Khamkhot'ko, A. F. See Drobich, O. P.
Khan, Y., and Qureshi, A. H. Thermal decomposition of $Sm-Co_{5+x}$ (1) 47*e*.
Kharif, Ya. L., and Vishnyakov, A. V. Region of existence of the ZnSe phase in the system Zn-Cu-Se (5) 144*i*.
Khariton, Ya. G. See Moroz, I. I.
Khariton, Ya. G., Dzhigiris, D. D., Fridrikhson, V. E., and Denisenko, V. I. Argillaceous-fibrous heat- and sound-insulating materials (9) 208*b*.
Kharitonov, Yu. A. See Gorbunov, Yu. A.
Kharitonov, Yu. A., Golyshev, V. M., Rastsvetayeva, R. K., and Belov, N. V. Crystal structure of synthetic $Na_3AlBeSi_2O_8$ (9) 228*d*.
Kharizanova, L. See Vachev, D.
Kharlamov, A. A. See Panchenko, O. A.
Kharlamov, Yu. A. Impact interaction of the particles with the substrate in detonation spray deposition (1) 4*b*.
Kharlamova, T. N. See Uspenskii, V. A.
Khaskin, L. I. See Gorbatyuk, V. A.
Khazanov, V. E. See Aslanova, M. S.
Khazhinskii, M. Yu. See Braverman, I. B.
Kheifker, D. M. See Malinin, Yu. S.
Kher, V. G., Patki, B. A., and Deshpande, D. A. X-ray, dielectric, and resistivity studies of $BaGeO_3$ (3) 75*i*.
Kheraskov, R. A., and Zal'manovich, V. L. Aggregate drying in a fluidized bed (5) 97*g*.
Khetchikov, Lev N. See Balitskii, Vladimir S.
Khigerovich, M. I., Baier, V. E., Slabyshev, G. M., and Shilov, Yu. S. Physicochemical methods for improving the quality of clay bricks (9) 207*h*.
Khimenko, M. V., and Novikov, N. N. Mobility of dislocations in dislocation-free Ge at low stresses (5) 142*g*.
Khimich, T. A. See Belov, V. F.
Khiminets, V. V., Chepur, D. V., and Turyanitsa, I. D. Vitrification and current-voltage characteristics of glasses in the systems As(Bi)-Sb-S-I (5) 111*g*.
Khizanishvili, I. G., Mamaladze, R. A., and Tsanava, Ts. P. Perlite glaze for household ceramics (5) 124*a*.
Khlebnikov, I. I. See Tairov, Yu. M.
Khlebnikova, I. Yu. See Senyavin, N. K.
Khlebopros, R. G. See Zakharov, Yu. V.
Khlynov, S. A. See Nikiforov, A. Ya.
Khmara, V. M. See Klochan, V. A.
Khmelevskaya, T. A. See Cherkinskii, Yu. S.
Khodan, A. N. See Luk'yanovich, V. M.
Khodorov, E. I. Optimization of material movement in a rotary kiln (5) 100*i*.
Khodskii, L. G. See Mazo, E. E.
Kholnyak, E. A. See Shcheglov, S. I.
Khokhlov, V. I., Dvoretskii, S. A., and Sidorov, Yu. G. High-temp. Hall effect in epitaxial doped GaAs (9) 232*i*.
Kholodnyi, Alexei G. See Gribko, V. F.; Syrkin, Ya. M.
Kholodok, N. I. See Rozentsveig, S. M.
Khomyakova, V. V. See Belyaev, E. K.
Khor'kov, P. N., and Kravchuk, A. A. Structural-mechanical properties of some plastic materials (3) 71*f*; Controlling the properties of porcelain bodies based on structural-mechanical characteristics (9) 214*i*.
Khoroshavin, L. B., Popova, V. I., and Preobrazhenskaya, S. A. Rheological properties of magnesite-phosphate mortars (9) 211*c*.
Khoroshavin, L. B., Rutman, D. S., Perepelitsyn, V. A., and Shchetnikova, I. L. Properties and use of magnesite mortar with a phosphate binder (9) 196*f*.
Khoroshavin, L. B., Ust'yantsev, V. M., Tretnikova, M. G., and Perepelitsyn, V. A. Casting and properties of MgO refractory concretes with Na phosphate binders (1) 16*a*.
Khorvat, A. M. See Goncharov, L. A.
Khrabrov, V. I. See Shur, Ya. S.
Khrabrov, V. I., Onoprienko, L. G., and Shur, Ya. S. Domain structure and magnetic properties of $YFeO_3$ particles below the single-domain critical size (5) 125*b*.
Khranova V. See Dimitrov, Z. ; Pavlova, I.
Khrobostov, L. V. See Bondar, Yu. D.
Khromova, N. N. Elastic, piezoelectric, and dielectric constants of multidomain and nonstoichiometric Li niobate crystals (9) 230*j*.
Kidde, Gustave E. CaF_2 from fluosilicates and by-product gypsum, P (3) 83*j*.
Kiefer, Ted F. See Strauss, Eric L.
Kiefer, Werner Glass articles having a brown to reddish-brown color from borosilicate glass of low thermal expansion by means of Ag diffusion dye, P (1) 14*f*.
Kiefer, Werner, Sack, Werner, and Krause, Dieter Surface crystallized glass bodies, P (1) 15*f*.
Kieffer, Richard See Constant, K. ; Gatterer, J. ; Wruss, Werner
Kieffer, Richard, and Ettmayer, P. Recent advances in the knowledge and applications of transition metal nitrides (3) 91*g*.
Kieffer, Richard, Wruss, Werner, Constant, K., and Habermann, H. System TiO-TiN-TiC (7) 188*a*.
Kieftenbeld, Erik A. See vanKonijnenburg, Jan T.
Kienow, Sigismund, and Naefe, Herbert Material transport by sublimation along temp. gradients produced in a MgO-chromite high-fired brick from the roof of a tunnel kiln (5) 118*a*.
Kienow, Sigismund, and Traustel, Sergei Occurrence of thermal stresses in kiln walls (5) 133*a*.
Kieser, J. See Danowski, W.
Kiessling, J., and Scharmann, A. Optical charge transfer in CaF_2:Sm (5) 143*a*.
Kietis, B. P. See Berkowicz, R.
Kifune, Isao See Nakahara, Yasuo
Kihlstedt, Per G., and Forssberg, Knut S. E. High-Al_2O_3 refractory material, P (9) 213*e*.
Kijima, Kazunori Effect of O partial pressure on the growth of α-Si_3N_4 (1) 37*h*.
Kijima, Kazunori, Tanaka, Hirokichi, and Setaka, Nobuo Preparation of α-Si_3N_4 with low O impurity (5) 144*e*.
Kijima, Mamoru See Takata, Masasuke
Kikineshi, A. A. See Semak, D. G.
Kikuchi, Akira See Tomozawa, Akihiro
Kilin, V. S., Cherednik, E. M., Shcheglova, L. N., and Ostrovskii, V. S. Oxidation resistance of C fibers with protective coatings (3) 66*b*.
Kim, C. H. See Tomozawa, M.
Kim, Cbulbo, and Tomozawa, Minoru Electrode polarization of glasses (5) 106*g*; Glass-metal reaction in ac electric field (9) 200*e*.
Kim, Chung Il See Park, Yong Wan
Kim, Hwan See Kimura, Shiushichi
Kim, K. S. See Sharma, M. G.
Kim, Keu Hong See Choi, Jae Shi
Kim, Myun Sup See Shin, Byoung Sik
Kimizuka, N. See Kato, K.
Kimmel, H. S., Cusumano, J. P., and Lambert, D. G. Kinetics studies of the reactions of $KMnO_4$ and KIO_4 in alkali halide disks (7) 183*i*.
Kimura, Hiroshi Monocrystalline PbSn telluride, P (5) 127*h*.
Kimura, Hiroshi, and Komiya, Hiroyoshi Melt compositions of II-VI compounds during crystal growth in a high-pressure furnace (1) 42*f*.
Kimura, Isao, and Habata, Hidetsugu Crystalline SiC whiskers, P (5) 121*f*.
Kimura, Kunio See Honda, Hidemasa
Kimura, Kunio, and Hamano, Kenya Foaming characteristics of volcanic glass in Shirasu (7) 157*b*.
Kimura, Masakazu, Utsumi, Kazuaki, and Nanamatsu, Satoshi Ferroelastic behavior in $Ba_2Ge_2TiO_8$ (9) 232*b*.
Kimura, Morihiro See Tani, Tetsuro
Kimura, Morihiro, Fujii, Youji, and Nobuhara, Keiichi Refractories for a fiber glass melting furnace (9) 211*j*.
Kimura, Morihiro, Kyoden, Hiroshi, Kakehi, Toshihiro, and Nanba, Yasutoshi Lining of ladle by slinger process: VI, Corrosion of sling mass for pig iron ladle (7) 165*j*.
Kimura, Shiushichi See Yasuda, Eiichi
Kimura, Shiushichi, Kim, Hwan, and Yasuda, Eiichi Fabrication of bicrystals of MgO with {100} cleavage plane (1) 38*i*; Effect of grain boundary on the fracture behavior with MgO bicrystals (5) 137*e*.
Kimura, Shiushichi, Yasuda, Eiichi, Tanaka, Hidehiko, and Yamada, Shigehiko Graphitization and microstructure of C fiber-glassy C composite (3) 65*h*.
Kimura, Toshio See Yamaguchi, Takashi
Kinbara, Akira See Asahi, Hajime
Kindurys, A. See Bendorius, R.
Kindysheva, V. S., and Kisiyi, P. S. Sintering behavior of NbC (1) 45*b*.
King, Frederick D. See Shewchun, J.
King, G. T. Problems of running a powder processing test room (7) 174*j*.
King, George A. See Ridge, Mayhew J.
King, George A., Ridge, Mayhew J., and Walker, Graham S. Location of Na incorporated in crystals of gypsum (9) 195*b*.
King, James E. See Francel, Josef
King, Jeffrey N. See Fritz, James S.
King, R. D., and Hiscutt, R. Transparent metal oxide films, P (5) 114*h*.
King, Randall N. See Mitoff, Stephan P.
King, Terance M. See Pearne, Frank S.
King, Walter C., and Medvid, Richard J. Composite laminate insulating body, P (9) 212*i*.
Kingery, W. D., Bowen, H. K., and Uhlmann, D. R. Introduction to Ceramics, B (7) 191*b*.
Kingery, W. D., Robbins, W. L., Henriksen, A. F., and Johnson, C. E. Surface segregation of Al (spinel precipitation) in MgO crystals (7) 187*b*.
Kinnebrew, Gerald P., Redwanz, James O., and Wolff, Elmer A., Jr. Ceramic substrate for receiving resistive film and method of forming Cr/Cr oxide ceramic substrate, P (3) 76*d*.
Kinoshita, Yoshiro See Morita, Kenichi
Kinser, Donald L. See Perry, Charles H.
Kiovsky, Joseph R., and Meacham, Jeffrey W. High-surface-area-Al_2O_3 bodies, P (7) 167*c*.
Kipperman, A. H. M. See Orton, J. W.
Kircher, C. J. See Ziegler, J. F.
Kirchheim, R. See Fromm, E.
Kirchmayr, E. See Hilscher, G.
Kirchner, H. See Koenig, B.
Kirchner, Henry P. Improving impact resistance of ceramic bodies and improved bodies, P (9) 205*i*. See Gruver, Robert M.
Kirchner, Henry P., Gruver, Robert M., and Sotter, W. A. Characteristics of flaws at fracture origins and fracture stress—flaw size relations in various ceramics (7) 179*e*.
Kirgizova, L. A. See Tseplovich, B. I.
Kirichok, P. P., Kazvini, N. D., and Bondarev, D. E. Role of intragranular microstrains in controlling the coercive force of ferrites (5) 145*b*.
Kirikov, V. A. See Shuvalov, L. A.
Kirilenko, I. A. See Vinogradov, E. E.
Kirillova, G. K. See Bystrova, V. I.
Kiriyama, Ryoiti See Nakashima, Hiroshi
Kirk, D. L. See Bayliss, C. R. ; Raven, M. S.
Kirk, D. L., Kahn, A. R., and Pratt, P. L. Thermal re-solution and growth of aggregate structures of divalent Mn that occur in monocrystalline NaCl (5) 146*h*.
Kirk, J. L. See Vedam, K.
Kirk, William F. See Jones, Cecil R.
Kirovskaya, I. A., and Mulikova, G. M. System GaAs-ZnSe (5) 146*b*.
Kirsten, W. Polaronic dc conduction in Ti-substituted Ni-Fe ferrites (3) 74*c*.
Kirtschig, Kurt Development of brickwork calculation (3) 62*i*.
Kiryukhina, N. A. See Borisova, I. I.
Kisatsky, P. J. See Vezzoli, G. C.
Kisel, N. G. See Gorislavskii, V. I.
Kiselev, B. A., Bruevich, V. N., Kudishina, V. A., and Deev, I. S. Mechanical strength of phosphate binder-containing glass-fabric laminates (1) 9*g*.
Kiselev, O. G. See Adamovskii, A. A.

Kiseleva, E. M. See Gutenev, M. S.

Kishimoto, Soichiro See Fukushima, Keitaro ; Matsumura, Yasuo

Kishino, Seigo See Takagi, Kazumasa

Kishmishyan, A. A. See Galdina, N. M.

Kishonas, A. P. See Gnip, I. Ya.

Kisilenko, N. G. See Baiburt, L. G.

Kisina, R. See Guoga, V.

Kislyak, V. I. See Bogdanova, G. S.

Kislyi, P. S. See Grabchuk, B. L. ; Kindysheva, V. S. ; Storozh, B. D.

Kislyi, P. S., and Kuzenkova, M. A. Activated sintering of high-refractory compounds (3) 84*a*.

Kislyi, P. S., Shvab, S. A., Gaevskaya, L. A., and Neschetnyi, V. A. Effects of particle size on the sintering of TiB_2 powder containing a 20% TiC addition (3) 65*c*.

Kiszely, Gyula See Ivocs, Laszlo

Kita, Hideaki See Bajpai, R. P.

Kitaj, Walter Improving adhesion of rubbery copolymers to glass, P (9) 205*h*.

Kitakaze, Arashi See Sugaki, Asahiko

Kitamura, Kazuo See Ohtsuka, Atsushi

Kitano, Ichiro, Koizumi, Ken, and Matsumura, Hiroyoshi Light-conducting glass structure, P (3) 61*c*; Light-conducting glass structures, P (7) 162*f*.

Kitayama, Minoru, Taniguchi, Kasuyuki, Kaneta, Kyoichi, and Hirose, Kikuzi Enamel glaze, P (5) 103*j*.

Kitayama, Teruki, Takahara, Hiroaki, and Ogawa, Hiroshi Apparatus for shearing flowing molten glass (3) 60*i*.

Kitazawa, Akio See Mizutani, Nobuyasu

Kitazawa, Koichi Grain boundary diffusion in ceramic materials (3) 88*a*.

Kitchel, George B. Machine and method for grinding and polishing beads and marbles, P (5) 113*h*.

Kitsul, V. I. See Brovkin, A. A.

Kittl, Pablo See Lyon, Patricio

Kitts, William H., Jr. Device for supporting a coated abrasive, P (1) 1*e*.

Kiuchi, Kazuo See Ohwada, Kuniki

Kivilghn, Herbert D., Jr. Thin film of Ge, P (9) 220*d*.

Kiwinska, Maria Application of detergents for the wetting of glass batch (9) 199*c*.

Klaczak, A. Water cooling for machinery in cement plants (3) 54*a*.

Klang, Hans See Engstrom, Bengt

Klasik, John A. High cristobalite and high tridymite in a Middle Eocene deep-sea chert (5) 140*e*.

Klaska, R., and Jarchow, O. Crystal structure and twinning of $RbAlSiO_4$ (9) 228*e*.

Klassen, V. K. See Matveev, A. F.

Klebe, Hans See Lange, Ludwig

Klein, E. See Ikonopisov, S.

Klein, Rainer See Grieser, Frank

Kleine, I., and Kuhr, D. Using a process computer at Burglengenfeld cement works (3) 53*i*.

Kleiner, M. B. See Avgustinik, A. I. ; Kovel'man, G. A.

Kleinschmidt, Peter Piezoelectric key, P (1) 29*d*.

Klement, Karel, and Karaim, Teodor Dolomitic polishing lime (7) 150*j*.

Kleparskii, V. G. See Ilyashenko, E. I.

Klepfer, Harold H. Nuclear fuel element, P (5) 129*i*.

Kleppa, O. J. See Charlu, T. V. ; Hong, K. C.

Klessens, W. See VandenHoek, W. J.

Klevtsov, P. V., and Zolotova, E. S. Crystallization from solution in an Li_2O-MoO_3 melt and some properties of Zr, Hf, and Ti molybdates (3) 85*e*.

Klimak, Z. A., and Fainer, I. S. Luminscent properties of BN phosphiding products (5) 141*b*.

Klimakov, A. M., Popovkin, B. A., and Novoselova, A. V. *T-X* projection of the phase diagram of the system BiI_3-Bi_2O_3 (1) 47*j*.

Klimanov, S. G. See Aslanova, M. S.

Klimenko, N. K. See Duplenko, Yu. M.

Klimenko, V. V. See Spivak, I. I.

Klimkovich, N. S., Vashchenko, A. I., Arzumanov, M. A., and Kostyrya, Yu. F. Use of Zr-containing synthetic corundum in a charge of aluminosilicate refractories (1) 20*g*.

Klimov, V. V. See Simonov, K. V.

Klinger, Otto-Eberhard, and Zagar, Ludvik Hydrolytic resistance of Cs_2SiO_3 glasses (7) 157*e*.

Klochan, V. A., Kovtun, N. M., and Khmara, V. M. Low-temp. spin configurations of Fe ions in $ErFeO_3$ (9) 234*a*.

Klokholm, E. See Matthews, J. W.

Klose, H., Zeissig, D., Lindemann, G., and Hottenwitzsch, P. Freq. dependence of the capacitance and thermally stimulated capacitance of GaAsP diodes (1) 26*c*.

Klyachin, V. V., Gabdulkhaev, R. L., Voronin, L. P., and Popov, A. D. Benficiation of semirefractory kaolin clays of the Troshkovskoe deposit (5) 133*c*.

Klyucharov, Ya. V., Kuznetsov, Yu. D., and Suvorov, S. A. Physicochemical processes in the interaction of components of the system $Mg(Al_{1-x}Cr_x)_2O_4$-SiO_2-$Fe_2O_3(Fe_3O_4)$ (1) 18*c*.

Klyuchnikov, Yu. F. See Krupnov, E. M.

Klyueva, L. S. See Kravchenko, I. V.

Knab, G. G. See Urusovskaya, A. A.

Knauf, Karl Mortars, P (3) 54*f*; Anhydrite mortars, P (9) 197*i*; $CaSO_4$ anhydrite mortar, P (9) 197*j*.

Knavish, Leonard A. Flat glass, P (5) 112*i*. See Gulotta, Joseph A.

Knidin, M. See Nguyen Quy Dao

Knidiri, M. See Brusset, Henry

Knieper, D. See Arenz, E.

Knight, Bruce L., Rhudy, John S., and Gogarty, William B. Use of radiation-induced polymers in cement slurries, P (5) 102*g*.

Knigina, G. I., and Pinaev, A. A. Microcalorimetry and stability of the phase composition of agloporite (5) 142*d*.

Knigina, G. I., Pinaev, A. A., and Tatski, A. N. Use of quartz-glauconite rocks for the production of Agloporite gravel (5) 102*i*.

Knippenberg, Wilhelmus F., and Verspui, Gerrit SiC crystals, P (9) 214*g*.

Knoedler, Diethelm, Kroepfl, Hans, Rau, Peter, and Wittmann, Theodor Nuclear reactor fuel element, P (7) 174*c*.

Knoedler, Heinz See Brandt, Klaus

Knoke, Marlies Prefabricated brickwork for public buildings (7) 163*e*.

Knotek, M. L. See Johnson, Ralph T., Jr.

Knotek, O. See Lugscheider, E.

Knotik, Karl See Bildstein, Hubert

Knottnerus, D. I. M., and denHartog, H. W. Axially nonsymmetric hole centers in Ca chlorapatite (5) 135*b*.

Knudsen, T., and Thaulow, Neils Quantitative microanalyses of alkali-SiO_2 gel in concrete (3) 52*h*.

Knueppel, Helmut, Brotzmann, Karl, and Fassbinder, Hans G. Increasing the life of basic refractory linings in hearth-type furnaces, P (7) 167*c*.

Knueppel, Reinhard, Helfmeier, Heinrich Ulrich, and Oeters, Franz Simple method for determining slag equilibria (5) 120*i*.

Knueppel, Reinhard, and Oeters, Franz Method for determining wear resistance of refractory linings in electric [arc] steel furnace (5) 118*c*.

Knutson, Oliver J. See Church, Peter K.

Knyazev, A. I. See Limar, T. F.

Knyazev, Yu. A. See Kabanov, Nikolai P.

Ko, Hon-Chung, and Richardson, D. W. Enthalpies of formation of cupric and cuprous bromides (5) 139*c*.

Kobayashi, Hiroo, and Oyama, Takeji Rate of dissolution of alumina in molten Fe oxide (1) 44*g*; Effect of addition of aqueous CrO_3 + MgO on making of zircon brick (5) 116*h*.

Kobayashi, Jiro See Nishida, Shinji

Kobayashi, Junichi See Morioka, Yoshio

Kobayashi, Kazuo See Umebayashi, Seiki

Kobayashi, Kazuo, and Kaneno, Masayuki Translucent alumina containing MgO, Y_2O_3, and La_2O_3, P (1) 29*a*.

Kobayashi, Keiji Optical and EPR studies on redox interactions of polyvalent ions (Cr,Cu) in glass (3) 58*g*.

Kobayashi, Keiji, and Okuma, Hideo ^{11}B and ^{27}Al nuclear quadrupole interactions in SiO_2-B_2O_3-Al_2O_3-R_2O glass systems (9) 199*f*.

Kobayashi, Kunimitsu See Nakagawa, Kenji ; Osagawa, Masaaki

Kobayashi, Motonobu See Shimada, Noburo

Kobayashi, Soichi, and Izawa, Tatsuo Mfg. an optical fiber, P (9) 205*d*.

Kobayashi, Soichi, Sudo, S., Miyashita, Tadashi, and Izawa, Tatsuo Preparation of silica glass using a CO_2 laser (5) 109*f*.

Kobayashi, Taneo See Suzuki, Suguru

Kobayashi, Taneo, Suzuki, Suguru, and Takahashi, Minoru Mechanical behavior of plastic clay body—spontaneous elastic deformation (3) 71*h*.

Kobayashi, Tomio, and Nozawa, Kazuo Ferrite magnetic transducer head, P (9) 219*i*.

Kobayashi, Toshihiro Method and apparatus for burning raw materials of cement clinker, P (3) 54*f*. See Kano, Saburo

Kobayashi, Toshio, Susa, Kenzo, and Taniguchi, Satoshi Photoconductive material comprising a solid solution of (Cd, Pb)S, P (1) 29*c*; New catalysts for the high-pressure synthesis of cubic BN (3) 66*a*.

Kobayashi, Yoshichika, Masuda, Mutsuo, and Takagawa, Masanori Eu-activated alkaline earth metal aluminosilicate phosphor, P (1) 28*j*.

Kobayashi, Yoshimitsu See Barkatt, Aaron

Kobtsev, B. M. See Kotlova, A. G.

Koch, George R., and Petersen, Carl T. Specimen coating device for a SEM, P (3) 77*h*.

Koch, Klaus, Troemel, Gerhard, and Heinz, Gerd Polythermic phase diagram of the system Al_2O_3-CaO-MgO-SiO_2 (9) 237*i*.

Kochelap, V. A., and Sokolov, V. N. Phase transitions in multivalley semiconductors in a magnetic field (1) 43*c*.

Kochetkova, G. V., and Tsokurenko, I. V. Extraction-photometric estimation of Se in glass (1) 8*e*.

Kochetkova, N. F., and Maslennikova, G. N. Intermediate layer in the system glaze-porcelain studied by electron probe (5) 123*e*.

Kochetov, V. S. See Pikashov, V. S.

Kochetova, A. P. See Gin-yar, E. A.

Kochetova, A. P., Pitak, N. V., Zelenskaya, A. T., and Drizheruk, M. E. Properties and phase composition of kyanite-sillimanite grog in relation to its preparation conditions (1) 19*b*.

Kochetygov, V. V. See Krikorov, V. S.

Kochev, K. D. See Guinzberg, A. V.

Kochka, Edgar L. See Fatzer, Elmer G.

Kocho, V. S., Kukarkin, A. I., Brin'ko, P. I., and Myagkov, V. A. Output performance of glass furnace regenerators (5) 108*h*.

Kocho, V. S., Kukarkin, A. I., and Kovshar, N. N. Determining the optimum time interval between changes in flame direction in regenerative glass-tank furnaces (9) 200*b*.

Kockel, Andreas See Haberey, Florian

Kocsis, Geza Determination of the viscosity of glasses in the range 10-10^{14} poises (5) 105*c*.

Kocsis, Joseph See Gauge, Thomas P.

Kocsis, Margit Comminution and structural changes in jet mills (5) 129*g*.

Kodaira, Kohei See Fukushima, Jun ; Ito, Shigeru ; Matsushita, Toru ; Takahashi, Junichi

Kodaira, Kohei, Iwasaki, Yushio, and Matsushita, Toru Stabilization of Zr under high pressure (5) 145*d*.

Koen, J. G., Res, M. A., Heckroodt, R. O., and Hasson, V. Photochromic effect in Er-doped tellurite glasses (7) 159*b*.

Koenig, B., and Kirchner, H. Magneto-optic studies and electrical measurements of current flow in superconducting Pb films in intermediate state (3) 74*c*.

Koerner, Hans G. Chemical and geological study of the Serraria clays from the Serraria Creek region, Ipojuca, Pernambuco State (7) 179*i*.

Koerner, Tassilo See Baeumler, Peter

Koester, H. M., and Kromer, H. Review of the kaolin and clay deposits in the Upper Palatinate (Oberpfalz), Germany (5) 134*a*.

Koesters, Richard Tool steels for forming glass (7) 160*i*.

Koestlin, H. Double-glazed windows with very good thermal insulation (1) 7*b*.

Koestlin, H., Jost, R., and Lems, W. Optical and electrical properties of doped In_2O_3 films (5) 143*b*.

Koftelev, V. T. Limiting operating temp. of heating elements made of conducting cermets (3) 66*e*.

Koga, Keizo Life of converter at Kokura Steel Works of Sumitomo Metal Co., Ltd. (5) 117*f*; Zircon bricks used in ladle lining (7) 166*i*.

Kogan, N. P., Mchedlov-Petrosyan, Otar P., and Satarin, V. I. Burning of clinker at lower temps. (1) 1*j*.

Koh, Jae Chun See Wickham, Donald G.

Kohanzadeh, Y. Hot splices of optical wave guide fibers (7) 157*d*.

Kohl, Fred J. See Fryburg, George C. ; Stearns, Carl A.

Kohlhammer, Walter See Schmickl, Helfried

Kohno, Katsuyasu See Nakata, Ryohei

Kohyama, Norihiko, and Sudo, Toshio Hisingerite occurring as a weathering product of iron-rich saponite (5) 140*h*.

Koie, Shichiro See Teramoto, Hideo

Koike, Susumu See Fujiwara, Shohei

Koiller, Belita See Falicov, L. M.

Koizumi, Iwao See Imoto, Shozo

Koizumi, Ken See Kitano, Ichiro

Koizumi, M. See Tsunashima, A.

Kojima, Masahisa See Ishigame, Mareo

Kojima, Seiji, Ohi, Kikuo, and Nakamura, Terutaro Temp. dependence of electrooptic coeff. and spontaneous birefringence of ferroelectric Gd molybdate (9) 241*f*.

Kojima, Yutaka Aerated concrete, P (1) 3*h*.

Koksharov, V. D. See Batrakov, N. A. ; Kashcheev, I. D.

Koktavy, B. See Sikula, J.

Kokubo, Tadashi See Tashiro, Megumi

Kokumai, Hiroyuki See Naito, Kiyoshi

Kolar, D. See Drofenik, M.

Kolar, D., and Guha, J. P. Use of phase diagrams in the synthesis of electronic materials (3) 75*i*.

Kolarov, K. See Mitev, T.

Kolbesen, B. O. See Foell, H.

Kolesnikov, E. A. Swelling of low-melting clays (1) 46*i*.

Kolesov, Yu. I., and Malashkina, T. G. Volatilization of components during glassmelting (1) 13*d*.

Kolesova, V. A. Ir absorption spectra of Li_3AlO_4 (1) 40*j*.

Kolom, Aaron See Rubin, Jack A.

Kolomiets, B. T. See Geller, I. Kh.

Koloskova, V. G. See Radautsan, S. I.

Kolosov, A. Kh. See Nikishin, B. I.

Kolpakov, I. V. See Aleksandrov, S. E.

Kolpakov, L. E. See Bas'yas, I. P.

Koltermann, Manfred Refractory materials in raw iron mixers and torpedo ladles (3) 67*i*.

Koltermann, Manfred, and Lythe, Trevor W. Activities in European Federation for Mfg. of Refractory Products Group V—testing of converter refractories (3) 63*g*.

Kol'tsov, S. I., Volkova, A., Ukhova, T. V., and Aleskovskii, V. B. Synthesis and investigation of the composition of reaction products of $TiCl_4$ with B-containing SiO_2 (9) 240*a*.

Kolyutskii, V. N. See Luk'yanovich, V. M.

Komarek, K. L. See Chou, N. J.

Komarov, Yu. T., Smirnov, V. V., and Yakubovskii, Ya. M. Sorting of pegmatite raw materials in a photoelectric separator (9) 221*e*.

Komarova, L. A. See Leko, V. K. ; Mazurin, O. V.

Komarova, V. N. See Chernina, L. L.

Komatsu, Noboru, Arai, Tohru, Sugimoto, Yoshihiko, and Mizutani, Masayoshi Cr carbide layer on the surface of an iron, ferrous alloy, or cemented carbide article, P (3) 69*g*.

Komatsu, Noboru, Arai, Tohru, and Sugimoto, Yoshihiko Method of forming a carbide layer, P (9) 213*c*.

Komatsu, Wazo See Takahashi, Ryuji

Komeya, Katsutoshi See Tsuge, Akihiko

Kominiak, G. J. Si_3N_4 films by direct rf sputter deposition (3) 75*b*.

Komiya, Hiroyoshi See Kimura, Hiroshi

Komiyama, Toru Composition and concentration dependence of the emission characteristic of Nd^{3+} in glasses (1) 6*e*; Temp. dependency of emission characteristics of Eu^{3+} in glasses (1) 12*i*; Optical properties of Eu^{3+} in Na aluminosilicate glass (3) 58*i*. See Ueno, Tsutomu

Komiyama, Yoshiro See Kaneko, Yasuhisa

Komor, Maria See Vertes, Attila

Kompan, V. N., Fel'dman, V. I., and Andryukov, I. F. Photoelectric signaling equipment for indicating the melt level in glassmelting furnaces (9) 202*j*.

Komppa, V. See Hautojarvi, P.

Komrska, J. See Satava, V.

Komskaya, M. S. See Moroz, I. I.

Komskaya, M. S., Kashper, Zh. I., Gaprindashvili, G. G., and Kovziridze, Z. D. Rheological properties of fine-grained ceramic masses for low-temp. firing (9) 216*d*.

Komskaya, M. S., Naigas, P. E., and Shpak, N. A. Improvements in the casting properties of Prosyanovskii-enriched kaolin (9) 215*h*.

Komura, Shuichi See Tatara, Seiji

Konak, C. See Sailer, E.

Kondo, Akihiro See Ishii, Takashi

Kondo, Katsumi See Kaneko, Yasuhisa

Kondo, Katsumi, Noda, Fumiyoshi, Murachi, Mikio, and Watanabe, Yuji Filling a casing with heat-insulating fibers, P (3) 69*a*.

Kondo, Marekata, Fukuda, Seiwa, and Yamamoto, Toyohiko Burning cement clinker, P (1) 3*i*.

Kondo, Motoki Method of implanting ions of different mass numbers in semiconductor crystals, P (1) 29*a*.

Kondo, Renichi See Goto, Seishi

Kondo, Wakichi See Fujii, Kinjiro

Kondorskii, E. I. See Galkina, O. S.

Kondrashov, A. I. Reactions of LaB_6 with carbides and borides of refractory metals (3) 67*d*.

Kondrashova, L. A. See Barinov, Yu. D.

Kondratenko, P. S., and Makshantsev, B. I. Propagation of laser radiation absorption waves in solid transparent dielectrics (3) 74*i*.

Kondrat'eva, B. S. See Artyushkina, N. G.

Kondukov, Nikolai B. See Akhundov, Alizakir A. O.

Konijnendijk, W. L., and Buster, J. H. J. M. Raman-scattering measurements of As-containing oxide glasses (1) 44*e*.

Konijnendijk, W. L., and Stevels, J. M. Structure of borate glasses studied by Raman scattering (3) 59*d*; Structure of borosilicate glasses studied by Raman scattering (7) 159*j*; Density and refractive index of borosilicate glasses in relation to their structure (9) 199*i*.

Konijnendijk, Willem Leendert Structure differences between borosilicate and aluminosilicate glasses studied by Raman scattering (7) 160*a*.

Konik, Zofia Extraction process of Al_2O_3 and SiO_2 from various grain size fractions of self-disintegration dust (7) 151*c*.

Konishi, Akio See Tsuchihashi, Shoji

Konishi, Hideo See Takamiya, Youichi

Konkina, V. M. See Zemel'man, V. B.

Konnikov, S. G., Ogorodnikov, V. K., and Sidorchuk, P. G. CdTe-$Cd_xHg_{1-x}Te$ heterostructures (1) 35*g*.

Kono, Yoshinao See Furukawa, Junichi

Kononenko, G. V. See Perepelitsyn, V. A.

Kononenko, N. I. See Bondar, V. M.

Kononko, V. P. See Pikashov, V. S.

Kononko, V. P., Pikashov, V. S., Krivokon, A. A., and Guzhavin, E. O. Gas burners for direct heating of tank furnaces (3) 81*d*.

Kononko, Vasily P., Bondarev, Konstantin T., Krivokon, Alexandr A., and Kovshar, Nikolai N. Glass tubes, P (5) 112*j*.

Kononov, G. I. See Gubenko, A. Ya.

Konopicky, Kamillo, and Patzak, Ingeborg Influence of reducing atm on the structure of O-deficient mullite (5) 117*c*.

Konstantinov, V. V. See Vasil'eva, T. A.

Konstantinova, L. See Gencheva, G.

Konta, J. Karlovy Vary kaolin and its importance for the European ceramic industry (5) 134*c*.

Kontz, Robert F., and Morrette, Richard A. Parison engaging, severing, and stripping, P (3) 61*j*.

Konzen, Jon Occupational physician looks at OSHA [Occupational Safety and Health Act] (3) 78*i*.

Koontz, Harry S. See Bollinger, Dwight A.

Koos, V., and Neumann, H. G. Effect of heat treatment on stress in electron-gun evaporated SiO_2 films (1) 25*g*; Stresses in thin Ni silicide films (5) 126*j*.

Kopaev, Yu. V. See Volkov, B. A.

Kopanda, Joseph E. See Nickelsen, Hubert O.

Kopcewicz, M., Kotlicki, A., and Szefer, M. Evaluation of the size of the spike regions formed in dielectric iron compounds due to proton irradiation (5) 139*i*.

Kopczynski, Stefan Canadian refractories for the burning zones of rotary kilns in cement plants (7) 164*e*.

Kopeikin, V. A. Phosphate cements and materials based on them (1) 3*i*.

Kopelets, V. S., and Batrakov, I. G. Concrete lining of chain zone of rotary kiln (1) 2*g*.

Kopeliovich, V. M. See Val'berg, G. S.

Kopelman, Bernard High-pressure Na-vapor lamp having improved monolithic alumina arc tube, P (5) 113*d*.

Kopilevich, V. S. See Okorokov, S. D.

Kopinets, I. F., Migolinets, I. M., Popovich, I. L., and Romanovich, M. E. Glasses of the system SbSI-GeS_2 (5) 107*a*.

Kopp, Otto C. See Zuberi, Zaheer H.

Koptsik, V. A. See Kaminskii, A. A.

Kopylov, Yu. B. See Protsenko, L. M.

Kopylova, V. P. See Kotlyar, E. E.

Kopylova, V. P., and Nazarchuk, T. N. Chemical stability of Si_3N_4 and oxynitride powders (7) 164*e*.

Kopytin, V. S. Contactless distributor for compressed air (1) 2*g*.

Kopytko, Yu. V. See Vlasenko, N. A.

Kor, S. K., and Tripathi, N. D. Phonon viscosity and dislocation drag in $SrTiO_3$ (1) 43*d*.

Korb, Stanley N. See Grandlic, Eugene J.

Korczak, P., and Staff, C. B. Czochralski growth of Nd-doped Y orthoaluminate (1) 36*d*.

Korenaga, Sadayoshi, Kose, Saburo, Iwasa, Mikio, and Takura, Kazuo Physical and chemcial properties of Al_2O_3 ceramics treated in molten K_2SO_4 for a long period (7) 185*a*.

Korenblit, I. Ya. See Ginsburg, S. L.

Korenstein, R. See Banks, E.

Korff, J. O. A., and Haseltine, B. A. Behavior of near-full-size cantilever brick wall girders (5) 114*d*.

Korin, Uri See Glucklich, Joseph

Korkin, V. I. Electromagnetic concentration of nepheline-containing residues (3) 82*j*; Phase composition of ceramic bodies with a low-Fe nepheline concentrate (9) 215*i*.

Korn, Roland, Seyd, Guenter, and Paulsen, Uwe Cleaning contaminated surfaces of nuclear power plants and recovery of removed surface particles, P (1) 30*c*; Apparatus for continuous feeding of granular material with sharp corners to a conveyor pipeline, P (5) 130*j*.

Kornacker, Rudolf Limestone and dolomite—raw materials for the glass industry (9) 201*g*.

Korndorfer, Eugen See Korsten, Andreas

Korneev, V. I., Sychev, M. M., and Kazanskaya, E. N. Hydration of dicalcium silicate in nepheline slurries (1) 2*h*.

Kornev, V. V. See Usatikov, I. F.

Kornev, V. V., Levenfel'd, G. Yu., and Pavlova, G. A. Acoustic studies of quartz glass containing Ti (5) 104*f*.

Kornilov, A. N., Ushakova, I. M., Huber, E. J., Jr., and Holley, C. E., Jr. Enthalpy of formation of HfO_2 (5) 139*e*.

Kornilova, V. T. See Inyushkina, T. L.

Korniski, R. See Platt, Ben C.

Kornmann, M. See Funk, R.

Korobka, L. A., Tret'yak, Z. A., Danilov, I. P., and Ivanova, G. M. Photometric determination of Y in ZrO_2 refractories (3) 66*f*.

Korobkina, V. V., Nikulina, L. N., and Englund, A. E. Belogorsk feldspar as a new raw material in porcelain production (3) 70*j*.

Korobov, O. E., Maslov, V. N., and Orlov, P. B. Productions of hyperlattice based on the solid solution GaP_x-As_{1-x} (5) 144*h*.

Korol, E. A. See Sleptsov, V. S.

Korolev, N. V. See Kovel'man, G. A.

Korol'kov, V. A. See Desyatnik, V. N.

Korotkevich, M. N., Vulikh, A. I., and Kutolin, S. A. Nitrides, oxides, and oxynitrides of refractory metals, P (3) 70*b*.

Korotkina, M. N. See Dubrovskaya, G. N.

Korshunov, B. G. See Permyakov, P. G. ; Safonov, V. V.

Korshunov, V. S. See Grigor'ev, I. V.

Korsten, Andreas, Benecke, Theodor, Korndorfer, Eugen, and Tetersen, Fritz Furnace installation operated by direct electrical heating according to resistance principle, in particular for preparation of SiC, P (7) 167*j*.

Kortel, A. A. See Alekseeva, A. N.

Kortleve, W. Bricklaying apparatus, P (1) 15*j*.

Kortnev, V. V., Aleksandrov, B. D., Rekhtman, M. Ya., and Kalita, V. S. Automated monitoring of tunnel kiln porcelain firing (1) 33*e*.

Korwin-Pawlowski, M. L., and Heasell, E. L. Thermal oxide layers on InSb (1) 47*h*.

Koryavin, A. A., Petukhov, S. V., and Slyavyanskii, V. T. Use of the KhL-69 chromatograph for analyzing gases in the bubbles of glasses (9) 203*d*.

Korzo, V. F. Preparation of aluminosilicate glasses by the activation decomposition of heteroorganic compounds (3) 58*e*.

Kos, B. See Krainer, E.

Kosacka, Elzbieta, Kotula, Barbara, and Romanowski, Ryszard Effect of extraction time and mixing rate on the Al_2O_3 extraction process from a self-disintegrating clinker (7) 151*d*.

Kosalapov, A. V. Industrial calorimeter for determining the amount of heat evolved during the hydration of mineral binders (9) 223*a*.

Kosarev, V. Yu. See Bazanova, I. M.

Kose, Saburo See Korenaga, Sadayoshi

Koseva, E. See Popov, E. I.

Koshchug, D. G. See Bryukner, F.

Koshino, Yutaka See Sunagawa, Ichiro

Kosi, Vladimir Improving the structural properties of asbestos-cement products by organic polymers (5) 100*h*.

Kosinski, Krzysztof See Haber, Jerzy

Kosokina, E. V. See Guzman, I. Ya.

Kosolapov, E. F. See Bron, V. A.

Kossuth, Donald A. See Burkard, Edward A.

Kostadinov, I. See Pavlova, Yu.

Kostanyan, K. A., Melik-Akhnazarov, A. F., Akopyan, A. R., and Rapoport, A. Ya. Melting of glass C89-2 in an electric arc furnace with mechanized unit for drawing glass pipes (9) 202*a*.

Kosteruk, V. P. See Samsonov, G. V.

Kostikas, A. See Simopoulos, A.

Kostinskii, E. P., Popudrenko, M. K., Kuz'min, S. V., and Yasud, L. L. Ash-slag wastes—effective aluminate additive (5) 98*a*.

Kostomarkov, V. S. See Matvievskii, A. V.

Kostyrya, Yu. F. See Klimkovich, N. S.

Kostyuk, V. A. See Nagornyi, A. P.

Kostyunin, Yu. M., Zhunina, L. A., Barantseva, S. E., and Dashchinskii, L. G. Development of a system for ceramming MgO blast furnace slag-containing glasses (5) 105*c*.

Kosugi, Junichi See Araki, Tadashi

Kosulina, G. I. See Makarova, T. A.

Kotani, Yoshio Operating conditions of ladle brick for vacuum degassing (5) 118*e*.

Kotel'nikov, G. R. See Shapiro, Ya. Z.

Kotenko, O. M. See Kutolin, S. A.

Kotlicki, A. See Kopcewicz, M.

Kotlova, A. G., Shchepochkina, N. I., and Kobtsev, B. M. Thermographic study of $Zn_3(PO_4)_2.4H_2O$ (9) 241*g*.

Kotlyar, E. E., Kopylova, V. P., and Nazarchuk, T. N. Analysis of SiC and materials made from it (1) 16*g*.

Kotov, N. V. See Frank-Kamenetskii, V. A.

Kotov, P. I. See Bashunin, A. I.

Kotov, P. I., and Bashunin, A. I. Method of studying elasto-plastic deformation under nonisothermal loading (1) 32*f*.

Kotsupalo, N. P. See Pushnyakova, V. A.

Kottwitz, A. See Leimer F.

Kotula, Barbara See Kosacka, Elzbieta

Kotyk, Michael See Stadelmaier, Hans H.

Kourkene, Jacques P. Prestressing a body of ceramic material, P (9) 222*c*.

Kovachev, I. See Serbezova, R.

Kovacheva, T. See Fekeldzhiev, G.

Kovacs, C. See Stanescu, L.

Kovacs, Robert Hydration and durability of fly-ash cements (5) 100*a*.

Koval'chenko, M. S., Bodrova, L. G., and Fen, E. K. Densification kinetics of higher Mo and W borides in hot-pressing (3) 64*b*.

Koval'chuk, V. S., and Lukash, E. S. Synthesis of Cr carbides on a substrate from separately evaporated Cr and graphite (3) 68*d*.

Kovalenko, G. D. See Bochek, G. L.

Kovalenko, L. I. See Krivilev, P. A.

Kovalenko, V. F. See Goryachev, Yu. M.

Kovalev, A. A. See Alekseeva, A. N.

Kovalev, G. I. See Shteinberg, Yu. G.

Kovalev, N. N., Logachev, Yu. A., Petrov, A. V., and Sorokin, O. V. Thermal conductivity of BaO-SrO solid solutions (9) 241*j*.

Kovalevskaya, I. P. See Zagorodnyuk, A. V.

Koval'kov, V. P. Determination of thermal conductivity coeff. during heating and/or cooling of geometrically simple bodies for arbitrary boundary conditions (1) 32*f*.

Kovchur, S. G. See Ol'shanskii, A. I.

Kovchur, S. G., Ol'shanskii, A. I., Kovchur, Z. E., and Galduk, A. P. Effect of diesel fuel on the refining technology and quality of crystal glass (5) 105*g*.

Kovchur, Z. E. See Kovchur, S. G.

Kovel'man, G. A., and Barenboim, A. M. Firing of porcelain with the introduction of atomized water into natural gas flames (1) 23*g*.

Kovel'man, G. A., Kleiner, M. B., Shuvalikhina, L. V., and Korolev, N. V. Detection of defects in porcelain using optical emission spectrography (3) 71*d*.

Kovshar, N. N. See Kocho, V. S.; Kononko, Vasily P.

Kovtun, N. M. See Klochan, V. A. ; Vasil'kovskii, V. A.

Kovtun, N. V. See Zmii, V. I.

Kovziridze, Z. D. See Komskaya, M. S.

Kowalska, Anna, and Gajerski, Ryszard Effect of doping of Ni oxide with Li ions on its adsorptive properties (1) 37*j*.

Koyama, Y. See Shimada, Noburo

Kozharina, T. P. See Orlova, G. M.

Kozhin, V. I. See Kaminskii, A. D.

Kozinski, Stanislaw See Deren, Jerzy

Kozlov, V. A. See Belyantsev, A. M.

Kozlova, A. E., Lukin, E. S., Poluboyarinov, D. N., and Petunina, A. Ya. Effect of the mode of grinding of Sc_2O_3 on its compacting and sintering (1) 37*f*.

Kozlova, A. P. See Barinov, Yu. D.

Kozlova, T. M. See Volkov, D. I.

Kozlowski, Theodore R. See Beall, George H.

Koz'min, M. I., Babich, V. I., and Pankova, N. A. Testing an experimental gas-burning furnace for glassmelting (1) 33*e*.

Koz'min, M. I., Minakov, V. A., and Zolotareva, R. S. New building materials containing industrial glass wastes (1) 10*i*.

Kozub, V. I. See Gal'perin, Yu. M.

Kozuch, Steve M. See Pytel, Richard N.

Kozyrev, V. V. Complex ceramic raw material (1) 22*i*.

Kozyreva, M. S., and Arzbeukhova, N. B. Optical properties of semiconductor titanates of Sr and Ba (5) 143*e*.

Kraeft, U. X-ray fluorescence analysis of carbonate- and silicate-containing raw materials and technical products (5) 132*i*; Reduction of interelement effects during X-ray fluorescence analysis of ground raw feeds and cements by impulse correction (7) 152*e*.

Kraeutle, H., Nicolet, M. A., and Mayer, J. W. Kinetics of silicide formation by thin films of V on Si and SiO_2 substrates (9) 234*f*.

Krainer, E., Kos, B., and Kunstovny, F. Wear in crushing and grinding plants (7) 153*h*.

Kraiukhin, V. I. See Nekrasov, K. D.

Krakhmal'nikov, Semen B. See Zilberman, Leonid B.

Kramarenko, V. A. See Ginzburg, V. M.

Kramer, Joseph S. See Creel, Theodore R., Jr.

Kramer, W. E. New preparative technique for Ca manganite (3) 82*h*. See Hopkins, R. H.

Kramer-Ageev, E. A. See Goleminov, N. G.

Kranz, H. See Ryssel, H.

Krasevec, V., and Navinsek, B. Faceting of UO_2 single crystal surfaces (9) 232*b*.

Krasil'nikov, K. G. See Skoblinskaya, N. N.

Krasnikova, M. D. See Berezhnoi, A. I.

Krasnobaev, A. A. See Polezhaev, Yu. M.

Krasnomovets, A. V., Okorokov, V. A., Stanislavskii, L. Ya., and Murovets, N. A. Dolomites of the Dankov deposit as raw

materials for converter refractories (1) 16*j*.
Krasnooper, P. T. See Gorobets, L. Zh.
Krasotkina, N. I. See Fraifel'd, M. S.
Krasovitskii, V. I. See Bondar, Yu. D.
Krasulin, Yu. L. See Asonov, A. N.
Kratel, Guenter, Stoher, Guenter, Vogt, Georg, and Kaiser, Hans Hydrophobic SiO_2, P (9) 226*i*.
Kratena, L. See Sikula, J.
Kratochvil, Miroslav Kilns, P (9) 197*b*.
Krause, Dieter See Kiefer, Werner
Krause, John T. See Nassau, Kurt
Krauss, Paul Design and rationalization (1) 23*a*.
Krausz, A. S. See Cekirge, H. M.
Kravchenko, A. F., Maronchuk, Yu. E., and Yakusheva, N. A. Hall coeff. in epitaxial layers of $Al_xGa_{1-x}As$ solid solutions doped with Te (9) 232*f*.
Kravchenko, I. P. See Grigor'ev, I. V. ; Materikin, Yu. V.
Kravchenko, I. V., Entin, Z. B., Klyueva, L. S., and Yashina, E. T. Improvement in methods of testing the strength of cement (1) 2*j*.
Kravchenko, I. V., Kuznetsova, T. V., Kuznetsova, Yu. F., and Gergert, I. E. Production of high-alumina cement (5) 101*g*.
Kravchenko, I. V., Tarnarutskii, G. M., and Yudovich, B. E. Method of introducing setting accelerators in cement (1) 3*d*.
Kravchenko, L. Kh., Sokolov, V. V., Sokolova, T. E., and Stonoga, Yu. A. Preparation of Eu monochalcogenides (3) 91*a*.
Kravchenko, V. P. See Bulakh, V. L.
Kravchinskaya, M. V. See Kuznetsov, A. K.
Kravchuk, A. A. See Khor'kov, P. N.
Kravets, V. A. See Frantsevich, I. N.
Krebs, Heinz, and Ruska, J. Anomalous density variations of the molten chalcogenide system Ge-As-Se (1) 5*j*.
Krefft, Gerda B. See Yoon, Soo-Choon
Kreft, W. See Goldmann, W.
Kreidl, Norbert J. Current trends in glass research (1) 6*c*. See Amrhein, Eva-Maria
Kreijger, P. C. See deHaas, G. D.
Kreingol'd, S. U., Panteleimonova, A. A., Shinkareva, N. A., and Chupakhin, M. S. Determination of O deficiency in SiO_2 (1) 36*e*.
Kreisler, A. See Alquie, G.
Krejci, P. See Rybka, V.
Krenev, V. A. See Savel'ev, B. A.
Krenkel, T. G. See Botto, I. L.
Krentsis, R. P. See Sudakova, N. P.
Krepak, Leonyid P. No-debiteuse sheet glass mfg. (3) 58*e*.
Kresge, James S. See Fishman, Herbert
Kressel, Henry See Hawrylo, Frank Z.
Kreutz, E. W. Solid-to-solid emission and band-to-band transitions (5) 145*j*.
Kriegseis, W., and Scharmann, A. Exoelectron emission of ZnO (5) 139*j*.
Kriger, E. M., Sapozhnikova, E. Ya., Zotova, N. L., and Maslova, V. M. Ferrite formation in the system Mg-Mn (5) 139*c*.
Krigman, L. I. See Rabinovich, M. A.
Krigsman, F. B. See Ivanov, I. A.
Krikorov, V. S., Kochetygov, V. V., Zhabotinskii, V. A., and Tyulyaeva, N. G. Influence of sinter conditions on the properties of Pb ziconate-titanate-germanate ceramics (9) 217*h*.
Krinchik, G. S., and Benidze, O. M. Magneto-optical studies of magnetic structures during micron resolution (9) 234*i*.
Krinchik, G. S., Krylova, V. A., Berdennikova, E. V., and Petrov, R. A. Anomalous magneto-optical properties of Bi-containing garnet ferrites (1) 35*h*.
Kripitser, A. M. See Syrkin, Ya. M.
Krishna Murti, G. S. R. See Rengasamy, P.
Krishnaji, Kant, Parmendu, and Srivastava, Ramji Dielectric permittivity and breakdown strength of MoO_3 film (3) 72*h*.
Krishnan, R. Preparation and some properties of Ru-doped YIG expitaxial thin films (9) 218*h*.
Kristmannsdottir, Hrefna Clay minerals formed by hydrothermal alteration of basaltic rocks in Icelandic geothermal fields (5) 135*i*.
Kriviler, P. A. See Aleksandrov, S. E.
Kriviler, P. A., Sachkov, V. P., and Kovalenko, L. I. Machine-plant slags used as pumice (9) 195*c*.
Krivoborodov, R. T. Cement industry in the 3rd year of the 9th 5-year plan (1) 2*d*.
Krivokon, A. A. See Kononko, V. P. ; Pikashov, V. S.
Krivoruchko, P. P. See Degtyareva, E. V.
Krivov, M. A. See Brudnyi, V. N.
Krizek, R. J. See Sheeran, D. E.
Kroeger, F. A. See Dutt, B. V. ; Selim, F. A.
Kroenert, W. See Dietrichs, P.
Kroenert, Wolfgang, and Siegert, Michael Spectroscopic study of silicates: I. Determination of the silicate ions in Ca silicate hydrates (5) 145*a*; Spectroscopic studies of silicates: II. Spectroscopic determination of silicate anions in Ca silicate hydrates (9) 239*c*.
Kroepfl, Hans See Knoedler, Diethelm
Kroeyer, Karl K. K., Fredstedt, Tage, and Brocks, Gunnar Ceramic material, P (7) 161*e*.
Krohn, David A. See Deeg, Emil W.
Krolchuk, L. A. See Toporkova, A. A.
Krokhin, V. A. See Permyakov, P. G.
Kroll, Herbert See Pentinghaus, H. ; Phillips, Michael W.
Krolla, Georg As_2O_5 glasses, P (9) 204*e*.
Krolo, P. See Krstulovic, R.
Kromer, H. See Koester, H. M.
Kroon, Willem L. See Schneider, Robert A.
Krstulovic, R., Feric, T., and Krolo, P. Determination of the heat of hydration by the heat of solution method proposed for the new Yugoslav standard JUSB.C8.028 (5) 98*i*.
Kruchinin, Yu. D. See Karayakin, V. A.
Krueger, Joachim See Keller, Wolfgang
Kruglitskii, N. N. See Grankovskii, I. G. ; Pashchenko, A. A.
Krulikovskii, B. K. See Bugai, A. A.
Krulwich, Lester S. Glass cutting apparatus, P (9) 205*a*.
Krumpholz, O. See Guttmann, J.
Krupin, A. A., Petrikhina, G. A., Ivanenko, V. N., and Nemertsev, V. S. Artificial porous aggregates from siliceous opaline rocks (9) 194*b*.
Krupkin, Yu. S. See Avgustinik, A. I.
Krupnov, E. M., Zazubin, A. I., Klyuchnikov, Yu. F., and Akchulakova, S. T. Interaction of volcanic glass with CaO in the presence of Na compounds (9) 201*g*.
Krupyanskii, Yu. F., and Suzdalev, I. P. Size effects in small particles of Fe_3O_4 (5) 145*i*.
Krushenok, L. B. See Balyuk, S. T.
Kruspe, Peter Brown glost-fire glaze for high-voltage porcelain (1) 22*f*; Semiconducting glazes and coatings for high-voltage porcelain—problems and present state of development (1) 23*f*.
Krutchen, Charles M. See Sliva, Daniel E.
Kruze, T. A., Tetel'baum, D. I., Zorin, E. I., and Shitova, E. V. Si_3N_4 layers synthesized by ionic-beam method (9) 238*j*.
Kruzhalov, A. V. See Gavrilov, F. F.
Krykhtin, G. S. See Timashev, V. V. ; Verdiyan, M. A.
Krylov, E. I. See Kasimov, G. G.
Krylova, V. A. See Krinchik, G. S.
Krylow, J. See Igras, E.
Krys'kov, V. I. See Galushkin, A. P.
Kryuchenkov, D. A. See Laptev, V. I.
Kryuchenkov, D. A., Rusinik, V. M., and Sibiryakov, V. A. Container glass plants of Czechoslovakia (5) 105*g*.
Kryzhanovskaya, L. G. See Mal'tsev, V. T.
Kryzhanovskii, I. G. See Pryadko, V. M.
Krzhizhanovskaya, V. A. See Glushkova, V. B.
Ksenz, I. I. See Usatikov, I. F.
Kuatbaev, K. K., Imashev, M. K., and Estemesov, Z. A. Characteristics of the effect of ground water on silicate materials (9) 227*a*.
Kubo, Kazuhiko, Esumi, Masashi, and Yamaguchi, Goro Ca-SiO_3 hydrate for industrial use: VII, Xonotlite heat-insulating material with bulk density of 0.1 (7) 164*c*.
Kubo, Kazuhiko, Mikuriya, Hidetoshi, and Yamaguchi, Goro Comparison of several fibers as reinforcement for a molded xonotlite material prepared by the slurry method (5) 116*g*.
Kubo, Kazuhiko, Minoura, Rihachi, and Yamaguchi, Goro Ca-SiO_3 hydrate for industrial use: III, Tobermorite slurry and its molded products (1) 2*a*.
Kubo, Kazuhiko, Mizuno, Katsuaki, Yamaguchi, Goro, and Hayashi, Hideo Synthetic wollastonite and molded material from it (1) 46*d*.
Kubo, Kazuhiko, and Yamaguchi, Goro Effect of CO_2 in air on the improvement of water durability of shaped xonotlite material (7) 151*b*.
Kubota, Hachiro See Kawano, Toshio
Kubovich, Frank S. See Bender, David J.
Kucharska, Leokadia See Swiecki, Zbigniew
Kucher, E. Development of the edge-runner mill (5) 129*i*.
Kucherenko, A. A. Properties of Keramzit treated with solutions of surfactants (9) 196*e*.
Kucherov, O. F. Problems of optimization in the silicate industry (1) 44*j*.
Kucsma, Michael E., Babcock, Gary J., and Harris, Berlin C., Jr. Glass fiber-reinforced injection molding compounds, P (5) 112*e*.
Kudelka, Denesne, Lukacs, Andras, and Csaki, Ida Increasing strength of sand-lime brick by homogenization of sand (5) 100*i*.
Kudielka, Heinz, and Grabke, Hans Juergen Investigation of the high-temp. Mn-N phase diagram by X-ray diffraction (9) 223*e*.
Kudin, O. V. See Trunov, V. K.
Kudinov, Gennady A. See Zilberman, Leonid B.
Kudishina, V. A. See Kiselev, B. A.
Kudryavtseva, T. N. See Rutman, D. S.
Kudza, Thomas M., Schwyn, Raymond E., and Berg, Morris Thick-film resistor paste containing tantala glass, P (5) 128*g*.
Kuechler, Heinz See Berger, Iris
Kuehnel, A., Siethoff, H., and Landwehr, G. Carrier concentration changes in Te induced by thermal neutron capture (5) 135*f*.
Kuehnel, R. A., Roorda, H. J., and Steensma, J. J. Crystallinity of minerals—a new variable in pedogenetic processes. Study of goethite and associated silicates in laterites (7) 180*i*.
Kuehnle, Manfred R. Thin-film deposition using segmented plasma, P (1) 29*i*.
Kuennecke, M., and Kempe, K. H. Refractory lining for elbows of planetary coolers with bricks and castables (5) 101*b*.
Kuenzle, H. G., and Eisenring, R. Cementfabrik Holderbank's new works at Rekingen-Mellikon, Switzerland (9) 194*b*.
Kuepper, Arthur K. See Bosshard, Ulrich W.
Kueppers, Gerhard See Lehming, Guenter
Kugai, L. N., and Nazarchuk, T. N. Determination of free B in the hexaborides of the rare earth elements (3) 79*j*.
Kuhlmann, Juergen, Lenzner, D., and Ludwig, Udo Simple method of measuring expansion pressures (5) 132*a*.
Kuhlmann, Pechiney Ugine Abrasives, P (7) 149*g*.
Kuhlmann-Schaefer, Wilhelm H. Zone melting, P (5) 128*a*.
Kuhn, Otto, and Schweitzer, Samuel Method and apparatus for making a groove in a semiconductor element, P (9) 219*e*.
Kuhr, D. See Kleine, I.
Kujava, John M. See Fogelberg, Clement V.
Kukarkin, A. I. See Kocho, V. S.
Kuklina, N. F. See Safonov, V. V.
Kuklina, Valentina N. See Boreskov, Georgy K.
Kukolev, G. V. See Nemets, I. I.
Kukolev, G. V., and Luneva, N. A. Kinetics of sintering of clay specimens with a mineralizer and a surfactant additive (9) 215*c*.
Kukolev, G. V., Piven, I. Ya., Zaika, A. I., and Polishchuk, V. S. Electron-microscopic study of ground quartz (1) 38*a*.
Kukolev, G. V., Skomorovskaya, L. A., Yarmak, O. F., and Lants, M. E. Influence of Ca and Mg oxides on the glaze microstructure (5) 123*j*.
Kukuruzov, A. P. See Bron, V. A.
Kukusheva, M., Sivova, R., and Yanchev, E. New effective dyes in ceramic glazes for decorative facade tiles (9) 215*g*.
Kukushkin, A. P. See Cherepov, P. V. ; Simonov, K. V.
Kulakov, M. P., and Golenko, V. P. Preparation of tabular crystals in the system CdS-CdSe from gas flow (5) 144*g*.
Kul'bitskaya, M. N., Nemilov, S. V., and Shutilov, V. A. Manifestation of structural features of vitreous substances in the temp. dependence of sound velocity (9) 201*j*.
Kulik, O. P. See Lyutaya, M. D.
Kulikov, I. B. Behavior of first order gapless semiconductors in a strong magnetic field (7) 170*j*.
Kulikova, A. S. See Shcherbenko, G. N.
Kulling, Achim, and Steinhausen, Helmut TiO_2 pigment, P (7) 179*b*.
Kulshreshtha, Arun P., and Saunders, I. J. Thermally stiumulated conductivity in semi-insulating GaAs at low and intermediate electric fields (3) 75*a*.
Kumada, Akio, Takano, Hiroshi, Eto, Yoshizumi, and Hibi, Masao Irregular ferroelectric element with controllable single domain, P (5) 127*f*.
Kumagai, Noaki Apparatus for supplying thin, flat articles, P (1) 31*b*.
Kumakura, Junkichi Changes in pottery design in Shigaraki (1) 1*h*.
Kumar, Binod, and Rindone, Guy E. Second droplet phase in phase-separated soda-lime-silica glass (5) 110*a*.
Kumar, H. S. A. See Marlor, Alan J.
Kumar, Krishna Growth of single crystals of CdO by molten hydrous KOH solutions (1) 39*g*.
Kumar, Rajendra See Tyagi, R. C.
Kumar, T. See Vasudevan, Padma
Kumasaka, Tetsuo See Ohno, Takashi
Kumazaki, K. Elastic constants and ionicity of semimetallic HgSe (5) 138*d*.
Kumazaki, K., and Odajima, A. Evidence for doubly ionized native donors in HgSe (1) 38*f*.
Kume, Makoto Glass-ceramic articles, P (3) 61*g*.
Kunchev, I. See Mitev, T.
Kunci, Klaus See Haberey, Florian
Kunde, Joachim See Wurmb, Rolf
Kunitskii, Yu. A. See Samsonov, G. V.
Kunkle, Gerald E. Method and apparatus for forming a ribbon of glass on a molten metal bath, P (5) 113*i*; Thermal control in a glass sheet forming chamber, P (5) 114*f*.
Kunst, Helmut See Fichtl, Walter
Kunstovny, F. See Krainer, E.
Kunz, Hans J. See Fischer, David J.
Kunz, W., and Loeser, G. Effect of organic flocculants on the dispersibility of Kaolin B, Oberwinter (5) 123*g*.
Kupriyanov, A. K. See Vasil'kovskii, V. A.
Kurakevich, L. A. See Mazo, E. E.
Kuramoto, Naoya, Saito, Hachiro, and Yamamoto, Wataru Foam-containing slurry to make porous inorganic construction material, P (9) 197*a*.
Kurashevskii, A. A. See Gogotsi, G. A.
Kurbatov, N. N. See Desyatnik, V. N.
Kurbatova, I. I. See Savvina, Yu. A.
Kurchevskaya, E. O. See Orlov, Yu. F.
Kurilina, M. I., Popil'skii, R. Ya., and Pavlov, V. F. Use of combined fluxes for sintering tile during fast firing (1) 23*h*.
Kurkjian, C. R. See Peterson, G. E.
Kuroda, Takayuki, and Mikoda, Masaaki Composite nitride-and-glass film resistor using glass composition of low fusion temp., P (9) 204*i*.
Kuroda, Toshiro See Anazawa, Shinzo
Kurskaya, I. N. See Baranova, T. F.
Kurtz, Anthony D., and Mallon, Joseph R. High-temp. transducers and housing including fabrication methods, P (5) 127*d*; Integrated transducer assemblies, P (5) 127*e*.
Kurtz, Anthony D., Mallon, Joseph R., Bernstein, Harold, and Weber, Richard A. Glass-backed transducers and glass-backed structures, P (7) 172*h*.
Kuschke, Renate See Fenner, Erich
Kusel'man, I. I., Slobodin, B. V., Potashnikov, Yu. M., Adamenko, V. D. Stoichiometric model of the reaction of V_2O_5 with NaCl (1) 45*i*.
Kushal'nikov, V. T. See Efimova, L. P.
Kushev, D. B. See Abdullaev, G. B.
Kushev, D. B., Sokolov, V. I., and Subashiev, V. K. Electrical modulation of multiple interference in layered GaSe crystals (5) 138*f*.
Kushihashi, Akira, Fuziwara, Yutaka, and Akashi, Naotomo Process and apparatus for producing glass having metal oxide coating, P (5) 113*h*.
Kushtalova, I. P. See Samsonov, G. V.
Kusminov, Yu. S. See Guinzberg, A. V.
Kusnitsyna, T. A., Apanovich, V. N., Velikanov, A. A., and El-

chis, B. A. Thermal emf of melts in the systems Cu-S, Cu-Se, and Cu-Te (1) 47*h*.
Kusuoku, Masashi See Naito, Kiyoshi
Kusy, D. See Bajza, A.
Kutateladze, K. S., Verulashvili, R. D., Kaplan, A. Yu., and Nozdryakov, N. L. Development and use of new compositions of opaque glasses (3) 56*g*.
Kutolin, S. A. See Korotkevich, M. N. ; Mal'tsev, V. T.
Kutolin, S. A., Belova, L. F., Samoilova, R. N., and Kotenko, O. M. Optical and physicochemical properties of monocrystalline α-$LiIO_3$ (5) 143*d*.
Kutsevol, L. I. Change of color of thin powder streaks and phase transformations of Mn oxides on heating in air (9) 227*h*.
Kutsevol, V. P. See Lukantsever, A. L.
Kutsykovich, Dorina B. See Zilberman, Leonid B.
Kutukova, E. S. See Bondar, A. M.
Kuwabara, H., and Yamada, S. Free-to-bound transition in β-SiC doped with B (9) 232*d*.
Kuwabara, Katsumi See Takahashi, Takehiko
Kuwabara, Kunji See Oki, Kazuo
Kuwabara, Makoto Positive temp. coeff. of resistivity in thick films of semiconducting $BaTiO_3$ (3) 74*c*. See Ohga, Youichi
Kuwano, Kingo See Hiraiwa, Osamu
Kuzenkova, M. A. See Kislyi, P. S.
Kuzin, I. A. See Kerssik, S. D
Kuzmany, H. Nonlinear sound amplification in ZnO (7) 184*a*. See Kabelka, H.
Kuz'menko, A. S., Ryabov, E. N., and Sandler, R. A. System $MnCl_2$-$TiCl_3$-KCl (1) 46*i*.
Kuz'menko, V. M., Lazarev, B. G., Mel'nikov, V. I., and Sudovtsov, A. I. Superconductivity of amorphous V (5) 145*g*.
Kuz'micheva, G. M., Borodulenko, G. P., Grizik, A. A., and Eliseev, A. A. Synthesis and symmetry of monocrystals of δ-Yb_2S_3 (9) 241*a*.
Kuz'min, L. I. Effect of refractory technology on pore characteristics (3) 64*j*; Capillary motion of Hg in refractories (9) 208*c*.
Kuz'min, S. V. See Kostinskii, E. P.
Kuz'min, Sergei V. See Seleznev, Yu. E.
Kuz'minov, Yu. S. See Zharikov, E. V.
Kuznetsov, A. I. See Evstishenkov, V. S.
Kuznetsov, A. K., Tikhonov, P. A., and Kravchinskaya, M. V. Diagram of the subsolidus equilibria and the stability of fluorite-like solid solutions in the system HfO_2-MgO (9) 229*d*.
Kuznetsov, B. I., and Zausaev, A. N. Improved labor conditions and accident prevention at the Angara cement plant (5) 100*d*.
Kuznetsov, F. A. See Smirnova, T. P.
Kuznetsov, G. M. See Kuznetsova, S. K.
Kuznetsov, N. N. See Chernyakhovskii, V. A.
Kuznetsov, V. Ya., Rogachev, D. L., Porai-Koshits, M. A., and Dikareva, L. M. Crystal structure of $RbNbO(SO_4)_2$ (1) 36*a*.
Kuznetsov, Yu. D. See Karklit, A. K. ; Klyucharov, Ya. V.
Kuznetsov, Yu. D., and Shmitt-Fogelevich, S. P. Interaction of orthophosphoric acid with kaolin and fireclay (3) 89*f*.
Kuznetsov, Yu. D., Suvorov, S. A., and Mel'nikov, A. D. Wear of spinel and spinel-periclase refractories by slags (3) 68*h*.
Kuznetsov, Yu. D., Velikin, B. A., Davydov, L. M., and Simanovskii, B. A. Quartzite-based materials for monolithic linings of steel-pouring ladles (5) 119*h*.
Kuznetsova, I. G. See Poluboyarinov, D. N.
Kuznetsova, S. K. Calculation of solidus curves in systems with GaAs participation (5) 135*e*.
Kuznetsova, S. K., Kuznetsov, G. M., and Vigdorovich, V. N. Alloys of the system Ge-Sn-As (5) 135*f*.
Kuznetsova, S. K., Shkalikova, K. I., and Kuznetsov, G. M. System Ge-In-Ga (5) 146*b*.
Kuznetsova, T. V. See Bernei, I. I. ; Kravchenko, I. V.
Kuznetsova, V. V. See Ustimovich, A. B.
Kuznetsova, Yu. F. See Kravchenko, I. V.
Kuz'o, I. V. See Mikol'skii, Yu. N.
Kuzovitkin, V. F. See Ivanov, V. M.
Kuzovlev, A. K., Ibadullaev, S. I., Kalinkin, V. I., and Gabelko, A. B. Economic efficacy of the multiple concentration of quartzofeldspathic sands from the Kerminsk deposit (9) 225*j*.
Kuzovlev, A. K., Ibadullaev, S. I., Kalinkin, V. I., and Ignatenkova, N. I. Beneficiation of quartz rocks from Uzbekistan deposits for the production of crystals (3) 82*d*.
Kuzuoka, Shinichi See Imoto, Shozo
Kvirikadze, A. G. See Bar'yakhtar, V. G.
Kvyatkovskaya, K. K. See Grum-Grzhimailo, O. S. ; Kats, M. E.
Kvyatkovskaya, K. K., Grum-Grzhimailo, O. S., and Mitrokhin, V. S. Crystallization of zircon in glazes (1) 23*a*.
Kvyatkovskaya, K. K., Savvateeva, L. M., Grebenyuk, Yu. L., and Ivinskaya, L. I. New glaze composition for facing tile (1) 23*b*.
Kwan, S. H., Fonstad, C. G., Colozzi, A., and Linz, A. Halogen vapor deposition of chalcogenide crystals Pb sulfide (9) 232*g*.
Kwatera, Andrzej See Pampuch, Roman ; Szpunar, Jerzy
Kwiatowski, A., Reszka, J., and Szwej, W. Scanning microscope investigations of ferrite $ZnNi(Co)Fe_2O_4$ porosity (7) 186*h*. Effect of lattice orientation in the sintering process of $ZnNi(Co)Fe_2O_4$ (9) 230*i*.
Kyle, T. R. Glass fiber hermetic seals using a C02 laser (1) 8*a*.
Kyoden, Hiroshi See Kimura, Morihiro ; Tani, Tetsuro
Kyuin, D. K., Sheinman, E. Sh., and Sakharov, E. N. Production of high-strength brick in a modernized tunnel kiln (5) 115*d*.

Laapas, Heikki R. Flotation of oxide minerals in hot pulp, P (3) 83*c*.
LaBelle, Harold E., Jr. Apparatus for growing crystalline bodies from the melt, P (9) 221*g*.
LaBelle, Harold E., Jr., and Cronan, Charles J. Growing monocrystalline tubular bodies from the melt, P (3) 76*c*.
Laberge, N. L., Gupta, Prabhat K., and Macedo, P. B. Density fluctuations in silicate glasses (1) 6*d*.
Labuda, Edward F., and Ryden, William D. Suppression of X radiation during sputter etching, P (5) 128*g*.
Labus, Stanislaw See Deren, Jerzy
Lacharme, J. P. Application of the Nernst-Planck equation to interdiffusion of Na and K ions in glass (9) 199*d*.
Lachman, Irwin M. High-temp. NiO rubbing seal material containing CuO and CaF_2, P (3) 69*f*.
Lachman, Irwin M., and Bagley, Rodney D. Pore size control in cordierite ceramic, P (7) 167*i*.
Lackey, W. J. See LaValle, D. E.
Lacon, John W. Method and apparatus for forming articles of fibrous materials, P (3) 61*e*; Articles of fibrous materials, P (7) 161*d*.
Laconich, R. L. See Ciarrapico, J. O.
Lacour, C., and Paulus, M. Influence of the composition and its heterogeneity on the densification of Ba hexaferrite (1) 26*i*; Chemical heterogeneity and crystal growth of Ba-$Fe_{12}O_{19}$. Statistical determination of the discontinuous grain growth (1) 35*j*.
Ladany, Ivan, and Cannuli, Vincent M. Method of forming *pn* junctions by liquid phase epitaxy, P (1) 28*j*.
Ladd, Charles C. See Martin, R. Torrence
Ladle, G. H. See Clanton, U. S.
Lado, Ernest A. See Nielsen, Haagen B.
LaDue, Stephen E., Begley, Edward R., and Wosinski, John F. Experimental use of fused-cast ZrO_2-Al_2O_3-SiO_2 refractories in glass furnace regenerators (3) 65*d*.
Lafferty, William D. See Port, David J.
Lagnier, R., Suski, W., and Wojakowski, A. Heat capacity of U sesquiselenide (5) 128*i*.
Lagos, Costas Mn- and Ce-activated Ba Ca orthophosphate phosphor, P (1) 28*h*.
LaGrouw, Coenraad M., VandenWittenboer, Cornelus W. T., and Hubers, Hendrik J. Sealed joint for joining parts of a vacuum vessel, P (3) 62*d*; Method of sealing adjoining parts of an evacuated vessel with solder glass, P (7) 162*b*.
Laguna, George R. See Cutchen, J. Thomas
Lagutin, A. E. See Kandaurova, G. S.
Lahiri, S. K. See Chou, N. J.
Lahmann, C. P. See Claussen, Nils ; Ownby, P. D.
Lahuerta, Javier Quality control in the production of brick and ceramic ware (3) 79*a*.
Lai, Fang S., and Fan, Liang T. Application of a discrete mixing model to the study of mixing of multicomponent solid particles (3) 79*e*.
LaIglesia, A., and Galan Huertos, E. Halloysite-kaolinite transformation at room temp. (3) 88*d*.
LaIglesia, A., and Martin Vivaldi, J. L. Synthesis of kaolinite by homogeneous precipitation at room temp.: I, Use of anionic resins in (OH) form (9) 240*b*.
Laikhtman, B. D. See Esanyan, S. Kh.
Laiming, Harry J. Adherent solderable cermet conductor, P (1) 27*i*.
Laird, James A. See Tung, Chi Fang
Lakatos, Bertalan See Goesele, Karl
Lakeenkov, V. M., Mil'vidskii, M. G., and Pelevin, O. V. Phase diagram of the system GaAs-ZnSe (5) 143*j*.
Lakhani, Hussain G. See Rowse, Robert A.
Lakkis, S. See Mercier, Jean
Lal, P. See Dixit, P. N.
Lam, John See Byckalo, William
Lam, Y. W. See Tong, K. Y.
Lamar, Richard S., and Scheffel, Norman B. Milled talc material, P (5) 135*a*.
Lamb, D. R. See Yeow, Y. T.
Lambert, D. G. See Kimmel, H. S.
Lambert, Emmanuel, Lambert, Jean L., and Delongueville, Bernard Glass cutting, P (5) 112*d*.
Lambert, Emmanuel, Lelong, J., Charlet, C., and Jelli, A. Effect of surface treatment on the strength of glasses (3) 56*d*.
Lambert, Jean L. See Lambert, Emmanuel ; Verheyen, Willy
Lambert, Michel Modern dry electrostatic enameling techniques; Discussion (3) 54*d*.
Lambert, Michel, and Cowley, Mike Electrostatic application of vitreous enamel powder (5) 103*g*.
Lambert-Dusollier, G. Glass transformation in stabilized or quenched soda-lime-silica glasses (1) 8*c*.
Lamont, W. E., McLendon, J. T., Clements, L. W., Jr., and Feld, I. L. Characterization studies of Florida phosphate slimes (5) 133*e*.
Lampkin, Curtis See Jordan, John F.
Lancaster, Brian W. See Ciliberti, David F.
Landa, M. I., Kalbyshev, O. A., and Voronin, N. V. X-ray microanalysis of ceramic materials (1) 27*h*.
Landa, Ya. A. See Puchkelevich, N. A.
Landa, Ya. A., and Glazachev, B. S. Enthalpy and heat capacity of industrial refractories in the 1300-2200°K range (9) 209*b*.
Landau, I. L. Paramagnetic effect of the two-dimensional mixed state in first-order superconductors (5) 143*h*.
Landee, Christopher P., and Westrum, Edgar F., Jr. Thermophysical measurements on transition-metal tungstates: I, Heat capacity of Zn tungstate from 5 to 550°K (7) 188*d*.
Landermann, J. B. See Silvestri, V. J.
Landes, Raymond L., and LeGros, Floyd F. Simultaneously breaking a plurality of frangible sheets, P (9) 206*e*.
Landis, James P., and Williams, Robert O. Lift swing furnace, P (1) 34*c*.
Lando, David J. Method of depositing a metal on a surface of a substrate, P (1) 28*j*.
Landry, Robert J. See Deeg, Emil W.
Landwehr, G. See Kuehnel, A.
Landy, Richard A. Development of an improved direct-bonded 60% magnesite-chrome refractory (1) 16*i*.
Lane, R. See Luff, D.
Lane, R., Brown, K. R., Elias, D. P., and Marshallsay, H. J. Effect of low-level substitution in the Pb zirconate titanate system (3) 86*c*.
Laner, F. Relation between compressive strength and tensile strength of bricks (1) 15*g*.
Lang, David V., Cho, Alfred Yi, Gossard, A. C., and Ilegems, Marc Study of electron traps in n-GaAs grown by molecular beam epitaxy (9) 240*f*.
Lang, Jean See Gaude, Jean
Lang, Jean, Marchand, Roger, Hamon, Christian, and L'Haridon, Paul Compounds with apatite structure: II, Crystal chemistry of nitrogenated silicate-apatites (9) 227*h*.
Langbein, H. See Feltz, A.
Langdon, Terence G. See Mohamed, Farghalli A.
Lange, F. F. Fully dense ceramic article and process employing MgO as a sintering aid, P (9) 213*c*. See Singhal, Subhash C.
Lange, Karl Pellet preheating and volatile recycling structure for glassmaking furnace, P (9) 206*a*.
Lange, Ludwig, Diether, Jean, Voelling, Axel, and Klebe, Hans Finely divided oxides, P (9) 226*h*.
Langenberg, Hartmut See Hohnfeld, Peter
Langley, Robert C., and Abrash, Muriel Glass frit containing Pb ruthenate or Pb iridate in relatively uniform dispersion, P (7) 161*i*.
Langlois, Roland E., and Roberson, Cletis L. Glass fiber bulk product, P (1) 14*j*.
Langston, Perry R., Jr. See Johnson, Alfred H.
Lankosz, M. See Ostachowicz, J. ; Wasilewska, M.
Lantaires, Jacques See Monneraye, Marc
Lants, M. E. See Kukolev, G. V.
Lanyon, H. P. D. See Clark, A. H.
Lanz, William A. See Wahl, Roger A.
Lapitskaya, E. V. Extraction-photometric estimation of As impurity in glasses (3) 57*c*.
Lapraz, D. See Caruba, Raoul
Laptev, V. I., Sokolova, V. P., Kryuchenkov, D. A., and Grebenyuk, D. S. Automated glassmelting furnace with provisions for electrical heating of the glass mass (9) 199*e*.
Lare, Paul J. See Swindells, Frank E.
Larenkov, A. P. See Sagalevich, Yu. D.
Larin, N. V. See Devyatykh, G. G.
Larina, R. A., and Ocheretnyi, V. A. Quaternary reciprocal system of the chlorides, tungstates, and metaborates of Li and Na (1) 44*d*.
Larionov, I. N., and Chernetskii, T. P. Joining semiconductor single crystals or metals, P (1) 28*g*.
Larkin, A. I. See Aslamazov, L. G.
Larner, L. J., Speakman, K., and Majumdar, A. J. Chemical interaction between glass fibers and cement (7) 150*e*.
Larsen, Herbert Connection between two light conducting glass fibers, P (7) 161*f*.
Larsen, P. K., and Metselaar, R. Defects and the electronic properties of $Y_3Fe_5O_{12}$ (7) 180*c*.
Larsen, P. K., and Robertson, J. M. Electrical and optical properties of thin films of Pb^{2+}- and Si^{4+}-doped YIG produced by liquid phase epitaxy (9) 217*a*.
Larson, D. R., and Hasselman, D. P. H. Comparative spalling behavior of high-Al_2O_3 refractories subjected to sudden heating and cooling (7) 164*g*.
Larson, Maurice A., and Mullin, John W. Crystallization kinetics of ammonium sulfate (1) 36*c*.
Lashkarev, G. V. See Palatnik, L. S.
Lashneva, V. V. See Dubok, V. A.
Lasiene, G. See Burneika, I.
Laskar, A. L. See Foster, D. L.
Lasley, Charles T. See Gimple, James J.
Lasne, Claude See Lazennec, Yeon
Lassabatere, L. See Bonnet, J.
Lasserre, Pierre See Pitsch, Johann
Laszlo, Jozsef See Adamkovics, Annamaria
Latanision, R. M. See Swain, Michael
Lauer, R. B. Electron effective mass and conduction-band effective density of states in $Bi_{12}SiO_{20}$ (9) 231*f*. See Ghosh, Amal K.
Lauff, Helmut F. See Berndt, Walter
Laurent, Sebastian M. See Lee, Thomas E.
Laurs, A. Deformation behavior of pyrometric cones (9) 222*b*.
Lausch, H. Reinforced glass tubes, P (5) 113*j*.
Lauterbach, Richard Coating surfaces of a workpiece by spraying on a coating substance, P (1) 31*d*.
LaValle, D. E., Costanzo, D. A., Lackey, W. J., and Sease, J. D. Technique for differentiating between open and closed pores on a microscopic scale (3) 81*d*.
Lawhon, Robert A. Removable dam barrier for a float chamber of a glassmaking apparatus, P (5) 114*a*.

Lawn, B. R., Fuller, E. R., and Wiederhorn, S. M. Strength degradation of brittle surfaces—sharp indenters (7) 187*b*.
Lawn, B. R., Wiederhorn, S. M., and Johnson, H. Strength degradation of brittle surfaces—blunt indenters (1) 45*j*.
Lawrence S. J., and Morgan, J. W. Strength and modulus of elasticity of brickwork in lateral bending (5) 115*g*.
Lawrenson, Jack See Robinson, Albert S.
Lawrenson, Jack, and Robinson, Albert S. Float glass, P (3) 61*a*.
Lawrie, J. Use of fibrous insulation materials in walls—some technical and economic considerations (3) 81*i*.
Lawver, James E., and Hopstock, D. M. Wet magnetic separation of weakly magnetic minerals (9) 226*c*.
Laycock, John N. C. See Ray, Neil H.
Layton, M. M., and Smith, J. W. Pyroelectric response in transparent ferroelectric glass-ceramics (1) 27*c*.
Layton, Margaret M. See Herczog, Andrew
Lazar, I. See Borcea, C.
Lazarenko, A. L. See Glikin, S. M.
Lazarenko, V. D. See Spivak, I. I.
Lazarev, A. N. See Tsekhovol'skaya, D. I.
Lazarev, B. G. See Kuz'menko, V. M.
Lazarev, G. E. See Tarabanov, A. S.
Lazay, P. D. See Wonsiewicz, B. C.
Lazennec, Yeon, Lasne, Claude, Margotin, Pierre, and Fally, Jacques Factors influencing the lifetime of pure beta-alumina electrolyte (1) 39*a*.
Lazovskii, V. A. Phase separation and fluidity of magnesite-chromite gunite compositions (1) 18*c*. See Karklit, A. K.
Lazovskii, V. A., Simanovskii, B. A., Yakovenko, L. F., and Rakin, L. A. Guniting of the lining of steel-casting ladles (3) 65*a*.
Le, B. Induced magnetic anisotropy in magnetite and Ni Fe ferrites with Al and Ga additions (9) 233*c*.
Leach, Bruce E. Calcining method for alumina, P (1) 34*f*.
Leach, Bruce E., and Hritz, George G. Extruding alumina, P (3) 79*f*.
Leadbetter, Maurice Gelling SiO_2 sols, P (1) 21*b*.
Leamy, H. J. See Mogab, C. J.
Leapman, R. D., and Cosslett, V. E. Extended fine structure above the X-ray edge in electron energy loss spectra (7) 182*e*.
Lebedev, E. A., Sueptitz, P., and Willert, I. Transport of Ag under the influence of an electric field in glassy As_2Se_3 (3) 93*f*.
Lebedev, N. F. See Mamykin, P. S.
LeBloa, A., Fortin, B., and Colin, Y. Methods for determining the impurity concentration in the substrate of field-effect transistor (5) 125*h*.
LeBot, J. See Raoult, F.
Leciejewicz, J. See Murasik, A.
LeClerc, P. Energy and the glass industry (1) 8*b*.
Lecocq, David E. See Franz, Helmut
LeCraw, Roy C. See Blank, Stuart L.
Lecrivain, Lucien See Hagemann, Ludwig
Ledbetter, Harvey D. See Byrne, Joseph B.
LeDoussal, H. See Provost, G.
Leduc, J. P. Corrosion of Pt by glass: I, Wetting of Pt by optical glasses; II, Corrosion of Pt by optical glasses (1) 6*h*.
Lee, Byung Ha See Lee, Chong Keun
Lee, Chi H. See Jayaraman, S.
Lee, Chong Keun Color development in silver-containing glass (5) 105*d*.
Lee, Chong Keun, Choi, Sang Heul, and Han, Sang Mok Thermal transformation of Ca silicate hydrates: II, Thermal transformation of tobermorite (3) 53*f*.
Lee, Chong Keun, and Han, Sang Mok Thermal transformation of Ca silicate hydrates: I, Thermal transformation of xonotlite (3) 53*e*.
Lee, Chong Keun, and Lee, Byung Ha Crystal growth in Zn-O-Al_2O_3-SiO_2 glass (7) 155*e*.
Lee, David A. Waste heat utilization for spray dryers (1) 33*h*; Operation and control aspects of convection-type rotating-shelf dryers (7) 177*c*.
Lee, Eung Sang Mechanical properties of porcelain bodies (7) 169*c*.
Lee, Eung Sang, Park, Cheol Won, and Hwang, Sung Yun Formation of spinel pigment. Green pigment based on Mg-chrome (7) 169*f*.
Lee, Hanju See Goytisolo, Jorge A.
Lee, Haynes A., Jr., and Rapp, Charles F. Faraday rotator device including lithia-silica glass articles containing Tb_2O_3 and methods of using it, P (7) 161*a*.
Lee, Hee Soo, and Chung, Kuk Sam Study of wollastonite-(II)—effect of wollastonite additions in mosaic tile body (3) 92*i*.
Lee, Hee Soo, Hyun, Sang Hoon, and Lee, Hyong Book Static fatigue of domestic soda-lime glasses (7) 159*f*.
Lee, Hong-Lim See Sasamoto, Tadashi
Lee, Hyong Book See Lee, Hee Soo
Lee, Jae Do, and Pentecost, J. L. Properties of flux-grown cordierite single crystals (5) 144*i*.
Lee, Joon Prepartion of pink stain using Mn sulfate (3) 71*a*.
Lee, Leonard S., Siegel, Howard M., and Sopp, Samuel W. Coated ferrous substrates comprising an amorphous MgO-SiO_2 complex, P (7) 172*a*; Coatings for ferrous substrates, P (9) 198*e*.
Lee, Leonard S., Sopp, Samuel W., and Siegel, Howard M. MgO coatings for ferrous substrates comprising amorphous MgO-SiO_2 complexes, P (5) 104*b*; Coatings for ferrous substrates, P (7) 154*j*.
Lee, Leonard S., Uyeda, Yoshio, and Heneghan, Leo F. Coating surface-oxidized Si-containing steel, P (9) 198*e*.
Lee, Leonard S., Uyeda, Yoshio, and Sopp, Samuel W. Coatings for ferrous substrates, P (7) 154*j*.
Lee, M., and Richman, Marc H. Chemical vapor deposition of a TiC coating on a cemented-carbide cutting tool (1) 16*c*.
Lee, S. Y., Jackson, M. L., and Brown, J. L. Micaceous occlusions in kaolinite observed by ultramicrotomy and high resolution electron microscopy (3) 89*i*.
Lee, Stanley H. One-handed throwing (7) 149*e*.
Lee, Thomas E., and Laurent, Sebastian M. Magnetic glass, P (1) 14*h*.
Lee, Yong Hi See Lim, Eung Keuk
Leers, Klaus J. See Wilrich, Peter Th.
Lefebvre, A. See Bassoul, P.
Lefebvre, Simone See Portier, Richard
Lefeld-Sosnowska, M., Zielinska-Robozinska, E., and Gronkowski, J. X-ray diffraction investigations of defects generated in Si single crystals by thermal oxidation (5) 147*i*.
Lefever, R. A. See Baughman, R. J.
Lefrancois, Robert See Bauwens, Robert
Leger, L. J. Method of attaching insulation tiles (3) 66*h*.
LeGros, Floyd F. See Landes, Raymond L.
Leheu, Jacques Diagrid for supporting a nuclear reactor core, P (5) 129*d*.
Lehmann, Hans, and Nicoletti, N. J. Moisture expansion and mineralogical stability of ceramic materials (5) 123*h*.
Lehmann, Hans, and Rieke, Klaus Kinetics of dehydration reactions in the system $CaSO_4$-H_2O (3) 89*h*.
Lehmann, Hans W., and Widmer, Roland Rf sputtering of ZnO shear-wave transducers (7) 172*c*.
Lehming, Guenter, and Kueppers, Gerhard Decoration of ceramic tile with decalcomania, P (1) 24*b*.
Lehmke, J. See Haberey, F.
Lehmusoksa, I. See Hautojarvi, P.
Lehnhaeuser, W., and Mueller, J. Effect of $BaCO_3$ in fine ceramic bodies (5) 123*h*.
Lebovec, Kurt, and Lin, Shi-troa Electron mobility in epitaxial Si near a sapphire substrate (9) 231*i*.
Lehrer, Gusta Phoenician glass bowl from Nimrud (3) 50*a*.
Lehrer, Stanley Fast, noncontact approach to accurate gaging (7) 176*b*.
Leibowitz, Donald, and Hoffman, Dorothy M. Method for controlling the composition of an electron-beam-deposited film, P (9) 219*f*.
Leichter, Peter See Bildstein, Hubert
Leimer, F., Stoetzel, H., and Kottwitz, A. Isothermal electrical polarization of amorphous GeSe films with blocking Al contacts influenced by Poole-Frenkel conduction (5) 125*c*.
Leimer, Gerhard, and Gugel, Ernst Composite materials by infiltration of Si_3N_4 (9) 208*a*.
Leininger, R. K. See Austin, G. S.
Leisenberg, Manfred Method and apparatus for controlling the air vol in a tunnel kiln according to the batch density, P (7) 178*a*.
Leisenberg, W. Operating techniques in kilns and drying plant and their realization in practice (3) 81*f*.
Leitl, Karl Trends in the manufacture and use of bricks (5) 115*g*.
Leitner, A. Tunnel kiln, P (1) 34*d*.
Leitner, Lutz, Hund, Franz, and Rademachers, Jakob Acicular magnetic iron oxides, P (3) 75*j*.
Lejawka, Weronika Quantitative X-ray phase analysis of aluminous cements (7) 152*d*.
Lejus, Anne Marie See Portier, Richard
Leko, V. K. See Gurkovskii, E. V. ; Mazurin, O. V.
Leko, V. K., and Komarova, L. A. Crystallization of quartz glass tubes (1) 6*b*; Crystallization of quartz glasses in different gas media (5) 105*h*.
Lele, R. V. See Basu, M. K.
Lelong, J. See Lambert, Emmanuel
Lemanov, V. V. See Esanyan, S. Kh.
Lemberg, I. Ch. See Erokhina, K. I.
Lemercier, Guy Heat-insulating lining for a fast reactor, P (7) 174*j*.
Lemon, T. H. High-tensile-strength thick-film Ag-Pd metalizations—improved compositions for screen-printed circuits (3) 73*e*.
Lems, W. See Koestlin, H.
Lenczner, D. See Wyatt, K.
Lenczner, D., Salahuddin, J., and Wyatt, K. Effect of stress on creep in brickwork piers (5) 114*e*.
Lenczowski, Leszek See Deren, Jerzy
Lendvay, Lajos Microhardness and its application in testing glasses and glass-ceramics (3) 58*a*; Preparation of electrically insulating vitreous semibeads (5) 125*i*.
Lenglet, Michel See Foulatier, Pierre
Lenoe, Edward See Finelli, Thomas M.
Lenskaya, G. S. See Takher, E. A.
Lenz, Lowell J. Sequence batch drying method, P (1) 31*e*.
Lenzner, D. See Kuhlmann, Juergen
Leonov, A. I., and Bondar, I. A. Synthesis and physicochemical properties of refractory compounds in the systems Ln_2O_3(LnO)-SiO_2, Ln_2O_3-GeO_2, Ln_2O_3-ZrO_2 (3) 92*e*.
Leonov, P. A. See Goncharov, L. A.
Lepere, K. Quality control in the acceptance testing of refractory materials (5) 119*f*.
Lepkova, D. See Gencheva, G. ; Gerasimov, E.
Lerch, Ronald E. See Cooley, Carl R.
Lerot, L., Poncelet, G., and Fripiat, J. J. Surface and some catalytic properties of a Germanic near-faujasite molecular sieve (7) 178*c*.
Leshchenko, N. P., Boldyreva, T. I., and Vartanyants, Z. Kh. Use of clays from the Nizhne-Uvel'skii deposit for the production of electrotechnical porcelain (3) 72*a*.
Leshchenko, N. P., and Gress, R. I. Calculating the phase composition of feldspathic electrotechnical porcelain (9) 214*d*.
Leshchinskii, D. A., and Babinet, L. M. Use of diamond tools in the polishing of tapered ground-glass joints (3) 59*i*.
Lesikar, A. V. Glass transitions of organic solvent mixtures (5) 106*j*.
Leskovar, Peter See Weitze, Arthur
Lesnova, G. A. See Pchelyakov, K. A.
Lester, Lawrence, and Bell, Robert P. Screed materials, P (8) 214*i*.
Lester, M., and Cooper, S. C. Effect of C content, testing temp. and furnace atm on the strength of tar-bonded and tar-impregnated magnesite refractories (9) 209*d*.
Lester, William C. See Brunner, Rolf H.
Lesz, J. See Biedrzycki, K.
Letokhov, V. S. Nonlinear high resolution laser spectroscopy (9) 223*h*.
Letyuk, L. M. Formation of microstructure and its effects on the properties of Li-containing rectangular hysteresis-loop ferrites (7) 171*b*.
Letzgus, Erwin A. See Belding, Jeffrey H.
Leuenberger, Hans U., and Stemme, Reiner Curing fissures of workpieces formed of metal oxide materials and processed under high material stress, P (5) 127*c*.
Leusden, C. O. P. Frost resistance of roofing tiles (9) 206*g*.
Leusden, C. O. P., and Weber, H. B. Avoidance of drying distortion of large-size clay blocks and brick planks (3) 62*e*.
Levcheva, Khr., Mitkova, El., Sakhno, K., and Radev, D. Transparent glazes for facade coating of ceramics (9) 216*f*.
Levcheva, Khr., Mitkova, El., and Vulcheva, A. Floor tiles manufactured from clays of the Chukurovo deposit (9) 206*g*.
Levcheva, Khr., Vasilev, Sv., and Lyutskanov, St. Auxiliary refractories with cordierite binder (5) 115*j*.
Levchuk, G. A. See Mchedlov-Petrosyan, Otar P.
Levchuk, V. V. See Karklit, A. K.
Levene, Leon Luminescent and/or photoconductive materials, P (5) 113*h*.
Levenfel'd, G. Yu. See Kornev, V. V.
Levenson, Michael K. See Scott, Garland E., Jr.
Levi, V. S. See Poluboyarinov, D. N.
Levin, D. I., and Nikulina, L. N. Relation between whiteness and translucence of porcelain (1) 23*d*.
Levin, E. S. See Gel'd, P. V.
Levin, Ernest M., and McMurdie, Howard F. Phase Diagrams for Ceramists, 1975 Supplement, B (3) 95*j*.
Levin, I. M. See Gurkovskii, E. V.
Levin, V. A. See Patrusheva, V. A.
Levina, E. A. See Liberman, G. V.
Levine, Charles A. See Brown, William E.
Levinson, Lionel M., and Philipp, Herbert R. Conduction mechanisms in metal oxide varistors (7) 170*c*.
Levitas, I., Pozela, J., Stalioraitis, K., and Janavicliene, N. Effect of nonuniform magnetic field on the conductivity in Ge (1) 37*g*.
Levitin, L. Ya. See Pankova, N. A.
Levitin, R. Z. See Belov, K. P. ; Gapeev, A. K.
Levitin, R. Z., Dmitrievskii, A. S., Henkie, Zygmunt, and Misiuk, A. Magnetic, magnetoelastic, and electrical properties of UGa_2 (1) 41*g*.
Levitskaya, Yu. F. See Rozentsveig, S. M.
Levitskii, Emmanuil A. See Boreskov, Georgy K.
Levitskii, V. K. See Saltevskaya, L. M.
Levy, Rachel See Shainberg, I.
Levy, Rachel, and Francis, C. W. Quantitative method for the determination of montmorillonite in soils (3) 80*a*.
Lewek, Stanley S. See Bartholomew, Roger F.
Lewis, Albert D. Making glass ampoules in a noncontaminating manner, P (3) 61*e*.
Lewis, C. W. Thermodynamic properties of molten silicates (7) 160*f*.
Lewis, D. See Bailey, J. E.
Lewis, David See Sheldon, D. A.
Lewis, George L. See Jacobson, Howard W.
Lewis, J. A. Laser heating of an optical fiber (9) 201*e*.
Lewis, J. E. See Higgins, J. K.
Lewis, Philip S., Jr., Agee, William A., Bullock, Jonathan S., IV, and Condon, James B. Electroslag refining of U and U alloys, P (1) 30*e*.
Leyens, Gerd, Rhiel, Ferdinand, and Woelk, Guenther Characterization of the homogenizing action of glass flow by a "refining number" (7) 155*d*.
Leznev, Yu. P., Tsutsul'kovskii, V. Ya., and Boldin, V. S. Quartz sands as a new raw materials base for the glass industry (9) 202*h*.
L'Haridon, Paul See Lang, Jean
Li, Che-Yu See Henrichsen, R. A.
Li, P. W., and Hagemark, K. I. Low-temp. electrical properties of Zn-doped ZnO (7) 183*d*.
Li, Tingye Optical transmission research moves ahead (5) 108*f*.
Liang, K. S., and Bienenstock, Arthur Group IIA impurities in glassy As2Se3 (1) 8*d*.
Liao, P. F. See Tofield, B. C.
Liberman, G. V., Levina, E. A., Nechepaeva, Zh. A., and Tsellkovskaya, T. G. Magnetic treatment influence on the interaction of tricalcium aluminate with water and solutions of Ca sulfate and Ca chloride (3) 52*f*.
Libienko, J. P., and Muszynski, Roman Effect of curing conditions on the strength and porosity of hardened portland cement paste (7) 151*d*.
Libor, G. See Hoehne, R.
Librant, Zdzislaw See Pampuch, Roman
Liebert, B. E., and Huggins, Robert A. Ionic conductivity of

Li_2GeO_4,Li_2GeO_3, and $Li_2Ge_7O_{15}$ (9) 233*g*.

Liebert, C. H., and Stecura, S. Ceramic thermal protective coating withstands hostile environment of rotating turbine blades (7) 153*g*.

Liebl, J. See Schatz, Uwe

Lieth, R. M. A. See Nishinaga, T.

Lifanov, I. I. See Sherstyukov, N. G.

Ligenza, Joseph R. See Kahng, Dawon

Lightfoot, Cecil W. See Horton, Arthur E.

Lightowlers, Edward C., and Collins, Alan T. Determination of B in natural semiconducting diamond by prompt particle nuclear microanalysis and Schottky barrier differential-capacitance measurements (9) 217*b*.

Lile, Derek L., and Davis, N. M. Optical techniques for semiconductor material and circuit inspection (1) 32*i*.

Liles, K. J., and Tyrrell, M. E. Waste glass as a raw material for lightweight aggregate (7) 160*f*.

Lillyman, Ernest See Mills, Alfred L.

Lillyman, Ernest, Mascall, Frank C., and Mathers, Cecil G. Processing of UF_6 including its absorption in aqueous Al nitrate, P (5) 129*b*.

Lim, Eung Keuk, and Lee, Yong Hi Slagging effect on refractories of combustion gas containing S (5) 120*d*.

Lim, John C. Brightness of crystalline layered silicate minerals, P (1) 34*e*.

Limar, T. F., Knyazev, A. I., and Savos'kina, A. I. Preparation of semiconductor TiO_2 doped with Nb_2O_5 (5) 144*g*.

Limburg, Gunter Clay preparation system for the brick industry, P (3) 63*d*.

Limes, R. W. BOF refractory experience at Republic Steel and in the U.S.A. (7) 164*b*.

Limpens, Mathias J. See Kerstan, Walter

Lin, Alice L., and Bube, Richard H. Photoelectronic properties of high-resistivity GaAs:Cr (9) 237*c*.

Lin, Alice L., Omelianovski, Eric, and Bube, Richard H. Photoelectronic properties of high-resistivity GaAs:O (9) 237*d*.

Lin, I. J., Nadiv, S., and Grodzian, D. J. M. Changes in the state of solids and mechano-chemical reactions in prolonged comminution processes (9) 227*j*.

Lin, M. J., and Lunsford J. H. EPR evidence for the formation of S_2O^- on MgO (7) 164*i*.

Lin, Ruey Y. See Economy, James

Lin, Shi-tron See Lehovec, Kurt

Lin, Sin-Shong Mass spectrometric analyses of vapor in chemical vapor deposition of alumina (3) 89*c*; Mass spectrometric analysis of vapor in oxidation of Si_2ON_2 (7) 183*h*.

Linares, Robert C. Growing crystals, P (1) 31*i*.

Lind, Theodore E., and Burton, Richard J. Growing quartz crystals and seed plate therefor, P (3) 76*c*.

Linda, I. G. See Antonov, V. A.

Lindberg, Russell A. High-temp. BeO capacitor, P (3) 76*d*.

Lindburg, Norman L. See Blust, Henry L.

Lindemann, G. See Klose, H.

Lindemann, Willi, Woergerbauer, Rupert, and Christenn, Hermann X-ray structure analysis of talc$(Mg_3(OH)_2Si_4O_{10})$ (7) 189*b*.

Lindemer, T. B. Estimation of Gibbs free energy functions (3) 87*j*.

Linder, Jacques F. Electron multiplier, P (3) 76*a*.

Lindley, M. W. See Jones, B. F.

Lindley, M. W., and Jones, B. F. Thermal stability SiC fibers (9) 212*g*.

Lindmayer, Joseph, and Allison, James F. Ta pentoxide antireflective coating, P (3) 55*c*; Applying an antireflective coating to a solar cell, P (7) 172*i*.

Lindmayr, Pokorny, and Tiefenboeck Direct-on white enameling on thin standard and decarburized sheet steel (5) 103*e*.

Lindner, Heinz J. Impregnating compound for fiber-glass mats, P (5) 113*e*.

Lindner, Herbert See Falckenberg, Richard

Lindstrom, Jan N., and Johannesson, R. T. Nucleation of Al_2O_3 layers on cemented carbide tools (7) 165*e*.

Lindstrom, Olle, and Lundblad, Erik Metal-coated diamonds in synthetic resin-bonded grinding wheels, P (1) 1*f*; Diamonds for use with grinding wheels, P (9) 193*g*.

Linford, R. G., Pollock, J. M., and Randell, C. F. Solid state batteries containing Ag sulfonium iodide electrolyte (9) 239*h*.

Ling, C. H. On-state differential resistance of a chalcogenide glass switch (3) 74*i*.

Lingl, Hans Apparatus for constructing wall panels having openings for doors and windows, P (5) 115*j*.

Lingl, Hans, Jr. Apparatus for blending brick, P (7) 163*i*.

Linke, E. See Wollbrandt, J.

Linn, D. F. See Plourde, J. K.

Linton, Robert W. Acid- and heat-resistant mortars for cellular glass compositions and products therefrom, P (9) 204*b*.

Linz, Arthur See Castleberry, Donald E.; Farrell, E. F.; Kwan, S. H.; Sharp, E. J.

Lipani, Anthony F. See Berg, Allan C.

Lipilin, A. S. See Ioffe, A. I.

Lipilin, A. S., Neuimin, A. D., Pal'guev, S. F., and Gul'bis, F. Hot-pressing of stabilized ZrO_2 obtained by the coprecipitation of hydroxides (1) 18*c*.

Lipinski, Tadeusz See Rozanowski, Boleslaw

Lippert, J. Casting truck for ceramic lavatory pans, P (3) 72*d*.

Lipson, H. G., Buckmelter, J. R., and Dugger, Cortland O. Nd ion environment in germanate crystals and glasses (1) 10*d*.

Lis, J., and Kajtoch, A. Preparation method and its effect on the properties of sands prepared under high-pressure molding (3) 66*g*.

Lisenko V. S. See Sitenko, T. N.

Lisitsyn, S. M., Chalyi, V. P., and Pashchenko, V. P. Process of formation of Mg-Al ferrite base solid solutions (3) 74*g*.

Liska, Oldrich See Barta, Cestmir

Lisovskii, F. V., Markelova, O. S., and Shapovalov, V. I. Magneto-optical effects and determination of magneto-optical constants of ferrite garnets (9) 234*i*.

Lisowski, Stefan, and Matyjaszewska, Anna Properties of gypsum plaster with addition of a monomer polymerized by ^{60}Co radiation (7) 152*a*.

Lisson, V. N. See Pletnev, R. N.

Listvina, E. I. See Venzel, L. I.

Litovchenko, V. G. See Gorban, A. P.

Litovitz, Theodore A. See Macedo, P. B.

Litovskii, E. Ya. See Puchkelevich, N. A.

Litster, J. W. Building brick with mating pegs and cavities, P (3) 63*c*.

Litt, Kenneth C. Grid for nuclear fuel assembly, P (5) 129*f*.

Little, Roger Irving Mocha ware (7) 149*e*.

Little, V. I. See Shaalan, M. S.

Littlechild, James E. See Watson, Ronald H.

Litvan, G. G. Variability of the N surface area of hydrated cement paste (7) 153*h*.

Litvinenko, Yu. G. See Eremenko, V. V.

Litvinov, P. I. See Frolova, A. A.

Litvinova, T. I. See Borevskii, V. M.

Liu, Lin-gun Chemistry and structure of high-pressure phase of garnets rich in almandite (9) 227*c*.

Livage, J. See Antoine, J.

Liviu, Walter Refractory siliceous cements, P (1) 22*d*.

Livshits, E. B. See Orlov, Yu. F.

Livson, Z. A. See Saltevskaya, L. M.

Lloyd, D. J. See Simpson, L. A.

Lloyd, William W. Crystal growth combining float zone technique with watercooled rf container method, P (5) 127*b*.

Lo, Quang Fu See Zlomanov, V. P.

Locardi, B., Scarinci, G., Gottardi, V., and Raccanelli, A. Thermal stability in various atms of glass-ceramic of low coeff. of expansion (3) 59*g*.

Locardi, B., Zambon, A., and Tornati, M. B minerals in the glass batch (3) 55*d*.

Locher, F. W. Effect of clinker manufacture on the properties of cement (5) 99*c*.

Locher, Friedrich Wilhelm, and Sprung, Siegbert Influences on the alkali-SiO_2 reaction in concrete (3) 52*c*; Setting of portland cement (5) 101*c*.

Locsei, B. P. Porous mullite-corundum materials produced by fast firing (9) 237*b*.

Lodder, J. C. See vandeGraaf, M. A. C. G.

Lodding, A., and Lundkvist, L. Ion probe technique for the study of Ga diffusion in Si_3N_4 films (3) 74*a*.

Loechner, Ulrich, and Corbett, John D. Rare earth metal-metal halide system: XVIII, Ho-Ho(III) chloride system. Ho in the divalent state (5) 144*c*.

Loeffler, Romain E. Apparatus for forming tubular fibrous insulatory articles, P (5) 121*b*.

Loehr, Manfred See Bosshard, Ulrich W.

Loeser, G. See Kunz, W.

Loewenstein, K. L. Manufacture of continuous glass fibers—present trends in the use of Pt alloys (5) 108*a*.

Lofgren, Gary See Donaldson, Colin H.

Logachev, Yu. A. See Kovalev, N. N.

Logan, Ralph A., and Reinhart, Franz K. Optical waveguides in GaAs-AlGaAs epitaxial layers (7) 171*g*.

Loginova, T. V. See Borisova, I. I.

Logothetis, E. M. Metal oxide O sensors for automotive applications (7) 171*j*.

Lohnherr, Ludger See Tiggesbaumker, Peter

Lommel, H. See Hauck, H.

Lomonos, O. I., and Aleksandrov, B. N. Deviations from the Matthiesson rule in the range 2–14°K in Sn, In, Hg, and Tl containing small amounts of impurities (1) 36*i*.

Lomonosov, V. V. See Zaretskii, D. F.

Loncar, G. See Bardos, L.

Long, John W., and Flora, Barney S. Assembly mechanism for nuclear fuel bundles, P (9) 220*i*.

Long, Roger A. Implantable ceramic bone prosthesis, P (1) 24*c*.

Longworth, G., and Warren, S. E. Moessbauer spectroscopy of Greek "Etruscan" pottery (9) 193*f*.

Lopatin, G. S., Malkova, A. S., and Shumilin, V. P. Vapor pressure in the system CdS-CdSe (5) 147*b*.

Lopatinskaya, D. I. See Strelov, K. K.

Lopato, L. M. See Maister, I. M.

Lopez, Wenceslao X. Basic sulfates and Al hydrates, P (1) 34*e*.

Loran, Thomas J. See Pardee, Robert P.

Lorec, S. Investigation of hydrosoluble components of clay ceramics (7) 163*b*.

Lorenz, Hermann, and Strienitz, Rolf Electron microscopic examination of the mullite fraction in corundum refractories with mullite matrix (1) 17*a*.

Lorenzelli, V. See Passerone, A.

Lorkin, Clive G. See Schiffarth, Josef

Louda, Jaroslav See Barta, Cestmir

Louis, E. P. Wear-resistant ceramic, P (1) 30*b*.

Loukes, D. G. See Robinson, Albert S.

Loukes, D. G., and Whitelock, Kenneth E. Electrically modified float glass, P (1) 14*d*.

Loukes, David G., Maltman, William R., and Howard, Colin R. Manufacture of glass, P (9) 205*c*.

Loup, J. P. See Rifflet, J. C.

Lovell, Anthony L. See Aldcroft, Derek

Lovell, V. M. Discussion of the paper "Surface forces in flotation" (9) 226*c*.

Loverman, J. W. A. See Verdonk, A. H.

Low, N. M. P., and Quon, H. H. Growth and characterization of Gd Ga garnet crystals (1) 39*e*.

Low, Philip F. See Kay, B. D.

Lowe, D. See Hamer, F. M.

Lowe, M. See Higgins, J. K.

Lowthian, Edwin D. Composite structures of knitted glass fabric and thermoplastic polyfluoroethylene resin sheet, P (5) 111*i*.

Lozenko, A. F., and Ryabchenko, S. M. Antiferromagnetic resonance in lamellar $CoCl_2$ and $NiCl_2$ crystals (1) 35*i*.

Lozin, G. A. See Drizheruk, M. E.

Lozovskii, V. N., Lunin, L. S., and Nikolaeva, E. A. Preparation of layers of solid solutions by zone recrystallization with a temp. gradient (5) 144*f*.

Lucaci, Ileana, Motiu, Emilia, Strusievici,Constanta, and Stan, Miorica Determination of soluble Pb in domestic ceramic products (7) 176*a*.

Lucas, Jacques See Denes, Georges

Luce, Robert L. See Seeds, Robert B.

Luce, Robert L., Perry, Joseph P., and Sansburry, James D. MOS circuit fabrication, P (3) 76*h*.

Lucey, Richard J., and Firman, Anthony H. Process monitoring in transistor production (3) 74*h*.

Luckschelter, Berthold See De, Amal K.

Ludeke, Rudolf See Chang, Leroy L.

Ludera, L. M. Dimensional design of rotary kilns for dolomite (5) 99*c*.

Luderer, Manfred, Wiedmann, Roland, and Rapp, Karl Electrostatic coating, P (5) 103*j*.

Ludwiczek, Herbert See Fischer, Richard

Ludwig, Udo See Kuhlmann, Juergen ; Punzet, Maria

Ludwig, Udo, and Daerr, Georg Michael Burnability of cement raw meal (5) 98*f*.

Ludwig, Udo, and Mueller, Wolfgang Chemical and mineralogical composition and the morphology of gypsum and anhydrite (9) 227*b*.

Ludwig, Udo, and Sideris, Konstantin Mechanism and effect of alkali admixture reaction (7) 152*c*.

Luff, D., Lane, R., Brown, K. R., and Marshallsay, H. J. Ferroelectric ceramics with high pyroelectric properties (3) 73*j*.

Luginina, I. G. See Matveev, A. F.

Luginina, I. G., and Verina, E. V. Causes of disturbances during the hardening of cements (1) 2*c*.

Lugscheider, E., Reimann, H., and Knotek, O. Ternary system Ni-B-Si (7) 188*c*.

Luhleich, H. Synthetic fine-grained graphite, P (3) 70*d*.

Lukacs, Andras See Kudelka,

Lukacs, Ileana, Morar, Gheorghe, Barna, Virgil, and Gagea, Lucia Toxicity of soluble Pb from domestic ceramic objects (7) 71*j*.

Lukantsever, A. L., Ochkur, P. G., Uvarova, A. S., and Kutsevol, V. P. Donskoe refractory fireclay deposit (5) 133*i*.

Lukas, H. L. See Gauckler, L. J. ; Huseby, Irvin C.

Lukash, E. S. See Koval'chuk, V. S.

Lukashenko, G. M. See Eremenko, V. N. ; Goncharuk, L. V.

Luke, Theodore E. Impurity control of domain switching in ferroelectric Bi titanate (9) 233*b*.

Lukin, E. S. See Kozlova, A. E.

Lukina, M. M. See Zalesskii, A. V.

Luk'yanovich, V. M., Kolyutskii, V. N., and Khodan, A. N. Electron-microscope study of pore structure in cement stone and polymer concrete (5) 99*j*.

Lumby, Roland J. Si_3N_4 powder, P (5) 122*j*.

Lundblad, Erik See Lindstrom, Olle

Lundkvist, L. See Lodding, A.

Lundsager, Christian B. Profile extension process for thermoplastic resins and ceramic thermoplastic resin binder compositions, P (3) 79*j*; Porous ceramic structure, P (9) 213*h*.

Luneva, N. A. See Kukolev, G. V.

Lunin, L. S. See Lozovskii, V. N.

Lunsford J. H. See Lin, M. J.

Lur'e, M. A. Effect of physical properties of refractories on their service life in an O converter (1) 17*e*.

Lurio, Allen, and Burns, Gerald Vibrational modes in (Pb, La)(Zr,Ti)O_3 ceramics (9) 242*b*.

Lur'ye, E. A. See Shashkin, D. P.

Lusche, K. See Maelzig, G.

Lussow, Robert O. See Berkenblit, Melvin

Luther, Lars C. See DiLorenzo, James V.

Lutze, Werner See De, Amal K.; Malow, G.

Lux, Benno See Gillot, Jacques

Luzin, K. V. See Simonov, K. V.

L'vov, S. V. See Andrianov, K. A.

Lyakov, D. See Popov, E.

Lyalikova, R. Yu. See Radautsan, S. I.

Lyashenko, V. I. See Sitenko, T. N.

Lynch, Charles T. (Editor) Handbook of Materials Science: Vol. II, Metals, Composites, and Refractory Materials, B (7) 190*g*; (Editor) Handbook of Materials Science: Vol. III, Nonmetallic Materials and Applications, B (7) 190*h*.

Lynch, Francis B. Vitreous enameling, P (3) 55*d*.

Lynch, James F. See Johnson, Dorthea M.

Lyng, Stig, and Gamlem, Karsten Anorthosite—a ceramic raw material (7) 168*d*.

Lynn, Scott See Clay, David T.

Lyon, Kenneth C. Calculation of high-temp. viscosities of soda-lime glasses (3) 55*e*.

Lyon, Patricio, and Kittl, Pablo Scanning and TEM applied to cement clinker studies (1) 3*d*.

Lyon, R. L. Dental alloy, P (5) 124*i*.
Lysak, S. V. See Degtyareva, E. V.
Lysak, S. V., Alapin, B. G., and Pitak, N. V. Solid-phase interactions in the system mullite-corundum (3) 68*b*.
Lysenko, V. D. Development of cement production equipment (1) 2*h*.
Lysenko, V. G., Revenko, V. I., Tratas, T. G., and Timofeev, V. B. Radiative recombination of a nonequilibrium electron-hole plasma in CdS crystals (9) 238*g*.
Lythe, Trevor W. See Ball, Nigel ; Koltermann, Manfred
Lythgoe, Stanley, and Irlam, Philip S. Glass-ceramic material, P (7) 161*f*.
Lyukshin, E. N. See Gurin, V. N.
Lyul'ko, R. L. See Piskarev, V. A.
Lyutaya, M. D., Kulik, O. P., and Timofeeva, I. I. Kinetics of Hf nitride formation in N and ammonia streams (1) 41*e*.
Lyutikov, R. A. See Mitrokhin, V. A.
Lyutin, V. I. See Kazak, V. F.
Lyutskanov, St. See Levcheva, Khr.
Lyutskanov, St., Chekhlarov, V., Tashkova, A., and Radkova, A. Controlling the quality of Dinas bricks used in the glass industry (3) 64*j*.

Maaghul, John Glass fiber sizing method, P (5) 112*f*.
Maaghul, John, and Griffiths, David H. Controlling glass fiber forming operation, P (3) 60*f*.
Mabru, Marcel Processing raw materials for mfg. glass, P (1) 15*c*.
MacChesney, John B. See French, William G. ; O'Connor, Paul B.
MacCrone, R. K. See Moon, D. W.
Macedo, P. B. See DeBolt, M. A. ; Laberge, N. L. ; Srinivasan, G. R.
Macedo, P. B., and Litovitz, Theodore A. Optical wave guide fibers, P (7) 162*e*.
Macek, Josef J. Construction of the optical orientation diagram of acid and intermediate plagioclases by A. S. Marfunin (9) 228*d*.
Machlin, Irving See Fairbanks, John W.
Maciag-Sternik, Henryka, and Elsermann, Hubert Specific resistance of various filter cloths to filtering cement paste (7) 152*i*.
Maciolek, Ralph B., and Speerschneider, Charles J. Growth of Hg Cd telluride by liquid phase epitaxy, P (1) 28*d*.
Mackenzie, John D. Glass products, P (1) 14*a*. See Dunn, Bruce ; Ericson, J. E. ; Makishima, Akio
MacKenzie, K. J. D. Calcination of TiO_2: VI, Effect of reaction atm and electric fields on the anatase-rutile transformation (7) 179*b*; Calcination of TiO_2: VII, Sintering of rutile (7) 179*c*; Calcination of TiO_2: IV, Effect of additives on the anatase-rutile transformation (7) 179*h*; Calcination of TiO_2: V, Kinetics and mechanism of the anatase-rutile transformation in the presence of additives (7) 179*j*.
MacKenzie, K. J. D., and Melling P. J. Calcination TiO_2: II, Influence of atmosphere on crystal growth in anatase powders (3) 84*a*.
MacKenzie, K. J. D., Smits, Robyn, and Melling, P. J. III, Effect of electric field on crystal growth in anatase crystal growth in anatase (3) 84*b*.
Macleod, A. C., and Cleland, J. Enthalpies of mixing in some binary molten alkali fluoride mixtures (5) 139*d*.
MacNabb, William V. Pu fuel adjacent burnable poison, P (5) 129*a*.
Macrovic, D., and Beldem, J. Phosphates(II)—thermal synthesis of Ca and Na orthophosphates (3) 80*i*.
Maddux, John F. Apparatus and method for increasing electric power in an electric glassmelting furnace, P (9) 204*d*.
Mader, S., and Blakeslee, A. Eugene Dislocations in $GaAs_{1-x}P_x$ (9) 217*e*.
Madigan, G. A. See Jones, A. L.
Madole, Jim M., and Ables, Richard F. Destablization and separation of ilmenite ($FeO.TiO_2$) tailings, P (3) 83*b*.
Maeda, Minoru See Okubo, Tsutomu
Maedebach, Heino Glass masterworks in the art collection of Coburg Castle (5) 97*c*.
Maekawa, Shizuya Influence of voltage on lining refractories in electric furnace (5) 117*e*.
Maelzig, G. Utilization of clinker cooling exhaust air at the Geisingen cement plant (3) 53*i*.
Maelzig, G., and Lusche, K. Cement works at Geisingen—design, construction, and early operating experience (3) 50*j*.
Maes, A. See Piegneur, P.
Maeta, Hiroshi, Iwata, Tadao, and Okuda, Shigeo C-axis spacing changes in pyrolytic graphite after neutron irradiation at 5 K (5) 135*f*.
Magden, I. N., and Kal'nev, N. A. Concentration effect of the distribution of As in Si (1) 36*e*.
Magder, Jules Foamed lightweight ceramic compositions, P (7) 163*j*.
Magee, Donald L., Bailey, Walter A., and Bailey, Roger P. Filament winding on a corrugated form to produce a cylindrical corrugated glass fiber part, P (1) 14*d*.
Magee, T. J., Peng, J., and Bean, J. Microscopic defects and ir absorption in CdTe (1) 42*g*.
Maget, H. Atoumation in the decorating shop (9) 214*c*.
Maglic, K. D. See Todorovic, J.
Magner, James E. See Basque, Max G.
Maguire, Edward A., and Readey, Dennis W. Microwave dielectric materials in the Li_2O-TiO_2-Al_2O_3 system (3) 74*e*.
Magunov, R. L. See Zagorodnyuk, A. V. ; Zakolodyazhnaya, O. V.
Mahama, Issoufou, Averbuch-Pouchot, Marie-Therese, and Grenier, Jean-Claude Determination of the phase equilibrium diagram for the $NaPO_3$-$Pb(PO_3)_2$ system (9) 229*c*.
Mahanta, P. C. See Bora, M. N.
Maher, Galeb H. See Eror, Nicholas G.
Mai, Y. W., and Gurney, C. Crack growth in mineral glass (1) 6*h*.
Maidin, V. I. See Nikishin, B. I.
Maier, Clarence C. See Parsons, William F.
Maimur, B. N. See Nekrasov, Z. I.
Mainstone, R. J. Properties of materials at high rates of straining or loading (3) 63*i*.
Mairesse, Jean P. See Plumat, Emile
Mairlot, Henri Microhardness, scratching, and breaking of glass (3) 58*c*.
Maister, I. M., and Lopato, L. M. Physicochemical properties of compounds formed by rare earth and Ba oxides (3) 90*e*.
Maitenaz, Paul Catalytically assisted pyrolytic self-cleaning oven, P (9) 198*d*.
Maja, M. See Abbattista, F.
Majdic, Aleksander Selection of refractories from the viewpoint of mechanical, physical, and chemical wear (5) 120*d*. See Hagemann, Ludwig; Routschka, G.
Majdic, Aleksander, Braun, Manfred, Geisdorf, Guenther, and Provost, G. Preparation of test specimens from lightweight concrete (3) 52*d*; Preparation of lightweight refractory concrete specimens with reproducible properties (9) 210*j*.
Majdraganova, M. See Bakardjiev, I.
Majid, C. A., Prager, P. R., Fletcher, N. H., and Brettell, J. M. X-ray investigation of the crystallization of chalogenide glasses of the type $(As_2Se_3)_{1-x}$:$(Tl_2Se)_x$ (1) 13*g*.
Majumdar, A. J. Glass fibers and compositions containing glass fibers, P (1) 14*j*. See Larner, L. J.
Majumdar, M. K. See Adhikari, M.
Majumdar, Rabindranath Reply to Comments on "Equilibrium studies of Fe in alkali phosphate glasses" (3) 55*i*.
Makarenko, G. N. See Marek, E. V.
Makarov, I. A. See Bulavin, I. A.
Makarov, N. I., and Raikhman, N. B. Increased cement production (1) 3*b*.
Makarov, V. A. See Prokhortseva, V. A.
Makarov, V. A., Puzei, I. M., Sakharova, T. V., and Gutovskii, I. G. Moessbauer effect and magnetic structure of Invar alloys with Mn as an impurity (5) 142*h*.
Makarov, V. I., Baryakhtar, V. G., and Gann, V. V. Effect of scattering processes on the anomalies in the thermodynamic characteristics of superconductors under pressure (7) 170*f*.
Makarova, S. F. See Abramov, V. V. ; Andreev, P. A.
Makarova, T. A. See Nesterchuk, N. I.
Makarova, T. A., Pivovarova, L. N., Piryutko, M. M., and Kosulina, G. I. Chemical stability of synthetic amphiboles (3) 85*a*.
Makaturin, B. I. See Dmitriev, P. N.
Makela, Kari See Vahakallio, Pentti
Makhalov, P. N. See Tarabanov, A. S.
Makhalov, Sergei F. See Kabanov, Nikolai P.
Makhova, M. F. See Dzhigiris, D. D.
Makino, Ichiro Determination of Sr in TV tube glass by atomic absorption spectrometry (3) 56*f*; Determination of trace amounts of Mo in glass (5) 105*a*; Determination of Ba in TV tube glass by atomic absorption spectrometry (7) 155*h*; Determination of P in TV tube glass (7) 155*j*; Determination of trace amounts of Cr in TV tube glass (7) 156*a*.
Makino, Osamu See Iga, Atsushi ; Matsuura, Mikio
Makishima, A. See Sakaino, Teruo
Makishima, Akio Single bond strength for GeO_2 glass (1) 11*h*. See Ericson, J. E.
Makishima, Akio, and Mackenzie, John D. Calculation of bulk modulus, shear modulus, and Poisson's ratio of glass (1) 5*f*; Desalination using porous glass tube coated with thin cellulose acetate (5) 105*i*.
Makolagwa, S. See Piekoszewski, J.
Makova, L. A. See Bron, V. A.
Makshantsev, B. I. See Kondratenko, P. S.
Maksimenko, V. M. See Bugai, A. A.
Maksimenkov, N. V. See Ugai, Ya. A.
Maksimenkov, P. P., and Ozhogin, V. I. Antiferromagnetic resonance study of the magnetoelastic interactions in hematite (1) 35*i*.
Maksimov, A. See Dyakovska, Tsv.
Maksimov, B. A. See Gorbunov, Yu. A.
Maksimov, G. A. See Devyatykh, G. G.
Maksimov, V. N. See Bogdanova, I. V.
Maksimova, N. V., Ilyukhin, V. V., and Belov, N. V. Crystalline structure of thoreaulite $SnTa_2O_6$ (9) 228*f*.
Malashkina, T. G. See Kolesov, Yu. I.
Malburet, Rene A. Apparatus for handling fragile sheets, P (3) 60*h*.
Malden, P. J. See Meads, R. E.
Malden, Peter J. Treatment of silicate minerals for paper coating, P (9) 242*c*.
Maldonado, J. R. See O'Bryan, H. M., Jr.
Male, Joseph A. See McGowan, H. Christopher
Maleev, S. V. Magnetic dipole forces and critical dynamics above the Curie point in ferromagnetic substances (1) 41*f*; Magnetization diffusion in a Heisenberg ferromagnetic substance above the Curie point (1) 41*j*.
Malenko, G. M. Increased production in cement plant (1) 3*c*.
Mal'gin, A. D., and Rumyantsev, G. A. Apparatus for scrubbing gases after clinker cooling (5) 98*a*.
Malik, O. P. See Arnold, R. G.
Malik, S. A. See Whitehead, David
Malinauskas, Z., and Silalnikas, V. Development of emf in a metal-dielectric-semiconductor system placed in a superhigh-freq. field (1) 36*h*.
Malinin, Yu. S., Zevin, L. S., Myasnikov, Yu. G., and Kheiker, D. M. New instrument for determining phase composition of cement clinker (1) 3*f*.
Malkin, Yu. E. Recent developments in the construction of shaft furnaces for the firing of limestones (9) 224*e*.
Malkova, A. S. See Lopatin, G. S.
Mall, R. P. See Dubey, G. C.
Mallon, Joseph R. See Kurtz, Anthony D.
Malmendier, Joseph W. High elastic modulus glass-ceramic articles, P (1) 14*e*; High elastic modulus borate glass, P (3) 61*j*.
Malmendier, Joseph W., Martin, Francis W., and Tyndell, Brian P. Fusion seals and sealing compositions for their production, P (7) 161*d*.
Malmgren, Richard P. See Daebler, Donald H.
Malov, Yu. I. See Boiko, G. N.
Malova, N. S. See Denisov, Yu. N.
Malow, G., and Lutze, W. Na diffusion in borosilicate glasses: I, Influence of glass composition (7) 158*d*; Na diffusion in borosilicate glasses: II, Ion dipole interactions (7) 158*e*.
Malow, Guenter See De, Amal K.
Malozemoff, A. P., and Papworth, K. R. High-speed photography of topological switching and anisotropic saturation velocities in a misoriented garnet film (1) 26*d*.
Malpas, R. E. See Rosseinsky, D. R.
Maltby, Frederick L. Method and apparatus for measuring the amount of coating material applied to substrates, P (5) 127*g*.
Maltman, William R. See Loukes, David G.
Mal'tsev, V. T., Kryzhanovskaya, L. G., Cherpillo, V. P., and Volkov, V. L. Ternary system of Na_2O-B_2O_3-V_2O_5 (1) 47*b*.
Mal'tsev, V. T., Kutolin, S. A., and Romanenko, D. A. Optical and electrophysical properties of glasses PbO-GeO_2-WO_3 (3) 58*f*.
Mamaeva, G. A. See Semkina, N. V.
Mamaladze, R. A. See Khizanishvili, I. G.
Mamedov, N. Kh. See Avalov, V. R.
Mamedov, T. G. See Voron'ko, Yu. K.
Mamedova, Kh. S. See Imanov, A. M.
Mamsurova, L. G. See Belov, K. P.
Mamykin, P. S. See Batrakov, N. A. ; Kashcheev, I. D.
Mamykin, P. S., and Lebedev, N. F. Effect of mineralizing additive of portland cement on the sintering of Dinas bricks (9) 194*d*.
Man in't Veld, Jan, and Hurx, Adrianus A. Tubular lamp envelope, P (9) 206*j*.
Manasevit, Harold M. Nitride films, P (3) 76*i*.
Manca, P. See Aresti, A.
Mandal, G. See Reddy, S. Ravindra
Mandal, R. K. See Mitra, N. K.
Manders, Lambertus W. J. See Verstegen, Judicus M. P. J.
Manfredotti, C., Murri, R., Rizzo, A., and Vasanelli, L. Electrical properties of GaTe grown by various methods (5) 125*h*.
Manfredotti, C., Rizzo, A., Bufo, A., and Cardetta, V. L. Preparation and properties of GaS_xSe_{1-x} solid solutions (9) 237*j*.
Mangel, Aleksander, and Doskocil, Jan Reactions between PbO, ZrO_2, and TiO_2 (9) 238*a*.
Mangia, Alessandro Determination of α-quartz in atmospheric dust—a comparison between ir spectrometry and X-ray diffraction techniques (3) 79*i*.
Mania, Ryszard See Deren, Jerzy
Maniatis, Y. See Tite, M. S.
Maniatis, Y., and Tite, M. S. Scanning electron microscope examination of the bloating of fired clays (5) 115*d*.
Manigault, Edward L. Al_2O_3 refractory, P; Al_2O_3 chrome refractory, P (7) 167*a*; Zircon refractory composition, P (9) 214*a*.
Mank, V. V., Ovcharenko, F. D., Golovko, L. V., and Vasil'ev, N. G. Nature of stable radicals in kaolinite (3) 90*b*.
Man'kov, Yu. I. See Zakharov, Yu. V.
Mann, Charles F. See Graham, Paul W. L.
Manning, Charles R., Jr. See Mathers, James P.
Mannone, J. See McCall, M. T.
Manring, W. H. See Davis, R. E.
Mansfel'd, G. D. See Ivanov, S. N.
Mansingh, Abhai See Jalauria, Rajiv
Mansingh, Abhai, and Bawa, S. S. Effect of surface layers on the spontaneous polarization of triglycine sulfate (1) 38*a*.
Mansmann, Manfred Processing of Al_2O_3 fibers, P (7) 168*a*.
Manukhin, A. V. See Pavlov, Yu. A.
Manusovich, M. I. See Baiburt, L. G.
Manzo, Jose See Jordao, Marco A. P.
Mao, H. K., and Bell, P. M. Crystal-field effects in spinels—oxidation states of Fe and Cr (5) 136*e*.
Marancik, William G. See Shattes, Walter J.
Marants, A. G. See Simonov, K. V.
Marboe, E. C. See Weyl, W. A.
Marchand, Roger See Lang, Jean
Marchidan, D. I., and Ciopec, M. Enthalpy of nonstoichiometric U oxides and sapphire to 1500 K by drop calorimetry (3) 77*h*.
Marchidan, D. I., and Pandele, Liana Thermal properties of KCl, CsCl, and binary mixture KCl+CsCl—high-temp. heat content (1) 47*j*.
Marchidan, D. I., and Tanasescu, Speranta Thermodynamic properties of nonstoichiometric U oxides (7) 174*e*.
Marciuska-Zygadlo, Maria Classification of the structures of ceramic pigments (7) 168*g*.

Marcotte, Raymond L. GaP simultaneous diffusion, P (7) 172*g*.

Marcus, Sanford M., and Patterson, Frank K. Varistor compositions, P (1) 29*b*.

Marek, E. V., Dudnik, E. M., Makarenko, G. N., and Remenyuk, E. A. Physical properties of B_4C with V and Cr additions (3) 66*g*.

Margotin, Pierre See Lazennec, Yeon

Marian, Tatiana Effect of soda ash on glassmelt mixtures stored in silos (3) 56*d*.

Maries, A., and Rogers, P. S. Controlled growth of crystalline silicate fibers (9) 228*d*.

Marik, Klara Artist and the glass industry (3) 49*h*; Award for a Hungarian artist (3) 49*i*.

Marin, V. P. See Nikolaev, I. N.

Marincheva, V. E. See Palatnik, L. S.

Maringer, Robert E., Rudnick, Alfred, and Mobley, Carroll E. Formation of discontinuous filaments directly from molten material, P (1) 31*h*.

Marinkovic, Zivka, and Roy, Rustum Influence of deposition conditions and substrate structure on the structure of sputtered Te films (3) 73*i*.

Marino, Joseph J. Mobile refractory gunning apparatus, P (3) 70*a*.

Marinos, Danny, and Ripfel, Hans C. F. Hydraulic balancing of a control component in a nuclear reactor, P (3) 78*f*.

Marinov, M., Gochev, G., Chakurov, Il., and Milenkov, R. Production of quartz-porcelain crucible refractories (9) 211*d*.

Markelov, B. G., Grigor'ev, A. I., Bobokov, Yu. Ya., and Stochek, L. G. Production of rammed quartz-clay bodies for the lining of steel-pouring ladles (9) 211*e*.

Markelova, O. S. See Lisovskii, F. V.

Markham, Harry See Romanski, Andrzej A. F.

Markina, I. B., and Voskresenskaya, N. K. Fusibility of a reciprocal system of the metaphosphates and orthophosphates of Li and K (1) 39*b*.

Markoo, Eric L., Strand, Tore G. H., and Sandell, Thorsten W. Multilayered flexible abrasive containing a layer of electroconductive material, P (7) 149*h*

Markosyan, A. S. See Belov, K. P. ; Gapeev, A. K.

Markov, K. D. See Girzhel, A. M.

Marlor, Alan J., Kumar, H. S. A., and Bergeron, Clifton G. Crystallization of $Cs_2B_8O_{13}$ from its undercooled melt (5) 105*g*.

Maronchuk, Yu. E. See Kravchenko, A. F.

Marotta, A. See Buri, A.

Marr, J. See Glasser, F. P.

Marschall, C. W. See Hoagland, R. G.

Marshall, Robert W. Introduction to the use of today's fuel oils (1) 33*f*.

Marshall, T. K. See Phillips, J. R.

Marshall, Thomas R., Parmenter, Charles S., and Seaver, Mark Precision measurement of particulates by light scattering at optical resonance (9) 223*j*.

Marshallsay, H. J. See Lane, R. ; Luff, D.

Marti, F. Burriel See Alvarez Jimenez, M. D.

Marti, Hans Fine balancing—a key to precision grinding (5) 130*a*.

Martin, David Electronic noses to sniff out rogue gases (7) 174*h*; Flue gases—giving SO_x the boot (9) 224*a*.

Martin, David M. Interaction of vinyl trichlorosilane and water with E-glass surfaces (7) 157*h*.

Martin, Francis W. See Malmendier, Joseph W.

Martin, George W. See Swanson, Rosemarie

Martin, J. F. See Andon, R. J. L.

Martin, John Glazing apparatus, P (3) 61*i*; Press molded hot glassware handling apparatus, P (5) 113*g*.

Martin, John, and Peyrani-Osorio, Enrique Sheet glass conveying, classifying, and stacking apparatus, P (7) 162*j*.

Martin, R. J. See Ballman, Albert A.

Martin, R. Torrence, and Ladd, Charles C. Fabric of consolidated kaolinite (3) 87*a*.

Martin Vivaldi, J. L. See Galan Huertos, E. ; Lalglesia, A.

Martin, W. E. Refractive index profile optimization in diffused graded index lenses (5) 109*j*.

Martinaitis, A. See Baubinas, R.

Martinez Caja, L., Moya Corral, J. S., and Garcia Verduch, A. Polymorphic transformations in celsian (1) 43*j*.

Martinez-Clemente, M. See Schmidt-Whitley, R. D.

Martinez-Ripoll, M. See Pardo, J.

Martsenyuk, M. A., Raikher, Yu. L., and Shliomis, M. I. Magnetization kinetics of suspensions of ferromagnetic particles (1) 42*a*.

Martynenko, V. V. See Saenko, E. P.

Marutake, Masakazu See Miura, Shinsuke

Maruyama, Tadashi, and Suzuki, Hiroshige Young's modulus of Si_3N_4 fibers (3) 93*j*.

Maruyama, Toshihiko See Sato, Katsunobu

Marx, F., Menessy, I., and Becherescu, D. Production of refractory borides in a plasma stream (5) 119*a*.

Marzocchi, Alfred Glass fiber-reinforced elastomers, P (9) 205*b*.

Masaki, Hideyuki Sintered Si_3N_4-base ceramic, P (7) 168*g*. See Kamigaito, Osami

Masaryk, Joseph S. Ca aluminate cement, P (9) 197*i*.

Mascall, Frank C. See Lillyman, Ernest

Mascaro, Francesco See Trevisan, Gianfranco

Mascolo, G. Device for internally cleaning glass vials, P (5) 112*c*.

Mase, Shunzo, and Watanabe, Tetsuo Multilayer metalized BeO ceramics, P (5) 127*i*.

Maserjian, Joseph See Guisinger, John E.

Mashchenko, L. V. See Zaporozhets, V. B.

Maskaev, Yu. A. See Kaminskii, A. A.

Maslankiewicz, Wojciech See Gutowski, Ryszard

Maslennikov, V. S. See Sitnik, N. P.

Maslennikova, G. N. See Kochetkova, N. F.

Maslennikova, G. N., Fomina, N. P., and Glebycheva, A. I. Synthesis of Fe-containing willemite pigments (3) 71*i*; Mn-containing willemite pigments with mineralizer additives (9) 215*d*.

Maslennikova, G. N., Glebycheva, A. I., and Fomina, N. P. Willemite pigments containing NiO additives (1) 23*i*.

Maslennikova, M. G. See Nekrasov, K. D.

Maslov, V. N. See Korobov, O. E.

Maslova, V. M. See Kriger, E. M.

Maslyanko, R. A. See Radautsan, S. I.

Mason, Larry D. See Clement, Donald R.

Masood, Irshad See Dave, N. G.

Massarant, E. See Berbenni, P.

Massey, Michael J., and Dunlap, Robert W. Contacting hot, viscous, molten slag with gaseous reactants, P (1) 33*j*.

Massies, Jean Claude See Vlasse, Marcus

Massonne, Joachim See Hellberg, Karl H.

Masterov, V. F. See Isaev-Ivanov, V. V.

Masters, David R. See Benton, Samuel T.

Masuda, Mutsuo See Kobayashi, Yoshichika

Masuda, Yoichiro, and Wada, Masanobu Crystal growth and some ferroelectric properties of W-bronzetype niobates $Ba_2Na_{1-x}Li_xNb_5O_{15}$ (1) 36*i*.

Masuyama, Takeshi See Iga, Atsushi

Masuyama, Takeshi, Matsuura, Mikio, Iida, Yoshio, and Amemiya, Toshioki Voltage-variable resistor, P (5) 128*j*.

Mateika, Dieter See Herrnring, Jorg

Materikin, Yu. V. See Karklit, A. K.

Materikin, Yu. V., Sturman, V. K., and Kravchenko, I. P. Testing refractories in an apparatus for the circulation vacuum treatment of steel (1) 20*f*.

Materikin, Yu. V., Sveshkov, Yu. V., and Kalmykov, V. A. Effect of phase and chemical composition of aluminosilicate refractories on their wetting by steels (5) 117*a*.

Mathers, Cecil G. See Lillyman, Ernest

Mathers, James P., and Manning, Charles R., Jr. Fracture toughness of phosphate-bonded Al_2O_3 reinforced with metal filaments (5) 103*g*.

Mathiot, A. See Patel, J. R.

Mathur, N. N., Rao, M. R. K., and Sen, P. C. Effect of Fe oxide additions on direct bonding in chrome-magnesite refractories (9) 209*g*.

Matkin, Derek I., Cavell, Ian W., and Dyson, John R. Electrically conducting material, P (9) 213*a*.

Matkovic, Boris, and Young, J. Francis Chemistry of portland cement and its potential for rapid strength development: I, Clinker phases and their hydration. II, Acceleration of strength development (5) 98*b*.

Matousek, Josef Transport of Pb ions at the interface between silicate glass and molten Pb (3) 59*h*.

Matsuda, Keizo See Fujita, Kazumi

Matsuda, Osaku See Tsunematsu, Shuji

Matsuda, Tasuku See Toda, Masumi

Matsuda, Toru See Suzuki, Junichi

Matsui, J. Interaction of slip dislocations in Si crystals having low dislocation densities (1) 40*d*.

Matsumoto, Hideo See Torii, Yasuyoshi

Matsumoto, Osamu See Saito, Michio

Matsumoto, Yoshifumi See Hiragushi, Keisuke

Matsumura, Hiroyoshi See Kitano, Ichiro

Matsumura, Isao See Niwa, Shohei

Matsumura, Yasuo, Kishimoto, Soichiro, and Ozaki, Masahiko Carbon fibers, P (5) 121*c*.

Matsunaga, Hitoshi See Ohno, Takashi

Matsunami, H. See Suzuki, A.

Matsuo, Akira See Ninomiya, Hisato

Matsuo, Masataka See Sugita, Kiyoshi

Matsuo, Shigetomo, Hotta, Noriyasu, and Nishiwaki, Yuhji Nitridation mechanism of Al powder in the fluidized-bed reaction (5) 142*f*.

Matsuo, Yoshihiro See Matsuoka, Tomizo

Matsuo, Yoshihiro, and Hayakawa, Shigeru High-temp. thermistor composition, P (9) 219*a*.

Matsuoka, Michio See Iga, Atsushi ; Matsuura, Mikio

Matsuoka, Tomizo, Fujimura, Masanori, and Matsuo, Yoshihiro PTC thermistor composition, P (9) 220*a*.

Matsuoka, Y. Laser-induced damage to semiconductors (7) 171*f*.

Matsushita, Toru See Fukushima, Jun ; Ito, Shigeru ; Kodaira, Kohei ; Takahashi, Junichi

Matsushita, Toru, Kataoka, Haruki, Kodaira, Kohei, and Tsunashima, Atsumu Growth of SnO_2 crystals by the vapor deposition technique (5) 140*b*.

Matsushita, Toru, Shimada, Shiro, Kodaira, Kohei, and Yamai, Iwao Effects of oxide additives on sintering of Zn_2SnO_4 (5) 138*h*.

Matsuura, E. See Ochiai, Y.

Matsuura, Koichi, and Tsurumi, Ichiro Effects of uniaxial stress on the electrical properties in CdS single crystals (5) 138*b*. Annealing stage of electron radiation damages in In-doped n-type CdTe crystals (3) 84*f*.

Matsuura, Koichi, Tsurumi, I., and Takeda, F. Optical absorption and lattice defects induced by neutron irradiation and heat treatment in ZnS crystals (1) 42*h*; Effects of uniaxial stress on the electrical properties in CdS single crystals (5) 138*b*.

Matsuura, Mikio See Masuyama, Takeshi

Matsuura, Mikio, Matsuoka, Michio, and Makino, Osamu Voltage-dependent resistor, P (9) 220*f*.

Matsuura, Takashi, and Chihara, Fumio Colored glass, P (3) 60*d*.

Matsuyama, Tatsuo See Inomata, Yoshizo

Matta, J. E., and Hasselman, D. P. H. Thermal diffusivity of Al_2O_3-Cr_2O_3 solid solutions (1) 47*f*.

Matthews, J. R., McClintock, F. A., and Shack, W. J. Statistical determination of surface flaw density in brittle materials (9) 239*h*.

Matthews, J. W., Klokholm, E., and Plaskett, T. S. Climb trails at dislocations in Gd Ga garnet ($Gd_3Ga_5O_{12}$) (1) 36*b*; Dislocations in $Gd_3Ga_5O_{12}$. Nature of prismatic loops and helical dislocations (9) 229*b*.

Mattis, Richard L., and Buehler, Martin G. Basic program for calculating dopant density profiles from capacitance-voltage data (3) 72*a*.

Mattyasovszky-Zsolnay, Tamas See Balint, Pal

Mattyasovszky-Zsolnay, Tamas, and Balint, Pal Effect of preparation methods on properties of clay bodies and greenware (9) 215*d*.

Matuda, Osaku See Yoshida, Akira

Matuleniene, I. See Bareikis, V.

Matulionis, A. See Banis, T.

Matulionis, A., Pozela, J., and Juciene, V. Intervalley junction in semiconductors (1) 26*c*.

Matulionis, A., Pozela, J., and Reklaitis, A. Quasi steady state of semiconductors in an electric field under conditions of the escape of electrons (1) 44*c*.

Matusik, Witold See Werber, Teodor

Matusita, Kazumasa, Sakka, Sumio, Osaka, Akiyoshi, and Soga, Naohiro Elastic modulus of mixed alkali glass (1) 7*d*.

Matveenko, I. I. See Zubov, V. G.

Matveev, A. F., Popov, V. A., Klassen, V. K., and Luginina, I. G. Characteristics of operation of a kiln system using cement dust slurries (1) 2*e*.

Matveev, A. I., Seryakov, V. S., and Yaroshevskii, L. E. Improvement in the construction of chamber pumps (1) 2*i*.

Matveev, G. M., and Mayants, M. M. Present technical-economic tendencies of industry toward silicate construction materials abroad (1) 15*g*.

Matvievskii, A. V., Kostomarkov, V. S., and Zhuravlev, G. I. Glass-ceramic material, P (5) 112*c*.

Matyas, M. See Horak, J.

Matyjaszewska, Anna See Lisowski, Stefan

Matyusha, S. I. See Bekker, L. Kh.

Matyushkin, E. V. See Venitskii, V. N.

Matzke, Hj., Nitzki, V., and Ronchi, C. Crystallization of amorphous UO_2 (1) 29*i*.

Maurel, Pierre, and Duhart, Pierre Acid treatment of ores, P (9) 242*b*.

Maurenbrecher, A. H. P. See Sinha, B. P.

Maurer, Robert D. See Schultz, Peter C.

Maurin, Maurice See Astier, Rene ; Moret, Jacques

Mavrodineanu, R., and Baldwin, J. R. Glass filters as a standard reference material for spectrophotometry—selection, preparation, certification, and use of SRM 930 (5) 131*b*.

Mavrodineanu, Radu, and Drews, Udo W. NBS glass standards (9) 202*g*.

May, Earl L., and Fisher, Joseph J. Apparatus for making flat glass including an edge stretching apparatus, P (5) 111*a*.

May, Joan T., and Reuss, John L. HCl digestion and solvent extraction of western phosphates (7) 178*g*.

May, John E. Metal oxide varistor with discrete bodies of metallic material therein, P (5) 127*f*.

Mayants, M. M. See Matveev, G. M.

Mayer, J. W. See Kraeutle, H. ; Turos, A. ; Ziegler, J. F.

Mayer, James W., Poate, John M., and Tu, King-Ning Thin films and solid-phase reactions—traffic in a submicron world (5) 126*c*.

Mazandarany, F. N., and Pehlke, R. D. Standard free energy of formation of Cr_2O_3 (1) 45*h*.

Mazdiyasni, K. S., and Brown, Leanne M. Pb La titanate bodies, P (3) 76*f*; Mullite powder and fabrication of structural bodies therefrom, P (3) 83*e*.

Mazdiyasni, K. S., and Cooke, C. M. Synthesis of high-purity alpha-phase Si_3N_4 powder, P (9) 226*c*.

Mazets, T. F. See Seregin, P. P.

Mazo, E. E., Khodskii, L. G., Ushakova, L. K., and Kurakevich, L. A. Stability of acid-resistant coatings in the presence of variable media (1) 4*h*.

Mazo, E. E., Khodskii, L. G., Zhos, F. T., and Zimkhovich, Z. I. Effect of ceramming on the chemical stability of acid-resistant Ti enamel (9) 198*a*.

Mazurin, O. V., Leko, V. K., and Komarova, L. A. Crystallization of SiO_2 and Ti oxide-SiO_2 Corning glasses (codes 7940 and 7971) (3) 56*b*.

Mazurin, O. V., Strel'tsina, M. V., and Shvaiko-Shvaikovskaya, T. P. Properties of Glass and Glass-Forming Melts: Vol. II, One and Two-Component Oxide Nonsilicate Systems, B (3) 96*b*.

Mazurov, D. Ya. New trends in the production technology of lime (calcareous) flour (9) 195*g*.

Mazza, G. Industrial application of glazes and colors on ceramic tiles (9) 215*j*.

McAllister, Lawrence E. See Finelli, Thomas M.

McBeath, Philip E. See Rankin, D. Thomas

McBride, M. B., and Mortland, M. M. Surface properties of mixed Cu(II)-tetraalkylammonium montmorillonites (9) 240*h*.

McBride, M. B., Pinnavaia, T. J., and Mortland, M. M. Perturbation of structural Fe^{3+} in smectites by exchange ions (3) 90*h*.

McCaldin, J. O., and Somorjai, G. (Editors) Progress in Solid State Chemistry, Vol. 9, B (3) 95*j*.

McCall, M. T., and Mannone, J. Analysis of cement pastes for triethanolamine (3) 50*e*.

McCarthy, Gregory J. Radioactive waste management—the nuclear waste form (7) 174*a*. See Johnston, Richard G.

McCarthy, Gregory J., and Davidson, Maritza T. Ceramic nuclear waste forms: I, Crystal chemistry and phase formation (1) 29*f*; Ceramic nuclear waste forms: II, Ceramic-waste composite prepared by hot-pressing (5) 128*c*.

McCartney, E. R. See Sharma, N. C.

McCaughan, Daniel V. See Wonsiewicz, B. C.

McCauley, J. W., Viechnicki, D. J., and Schmid, F. Fabrication of metal-ceramic composites, P (7) 167*h*.

McCauley, James W. See Tye, R. P.

McChesney, Robert D., and Degner, Vernon R. Methods for recovering metals and glass (1) 9*h*.

McClintock, F. A. See Matthews, J. R.

McClusky, James K. See Wilhelm, Harley A.

McCombs, Frank P. Glass fiber-reinforced elastomers, P (1) 14*j*. See Biefeld, Lawrence P. ; Bolen, Charles E. ; Foley, Kevin M.

McCook, Norman L. See Abercrombie, William F., Jr.

McCorkle, K. H. See Morgan, C. S.

McCourty, Ian A., McKenzie, Howard W., and Oakland, Philip J. Cutting glass, P (3) 60*g*.

McDermott, J. F. See Vance, M. W.

McEldowney, B. A. See Hench, Larry L.

McEvoy, A. J. See Higginbotham, I. G.

McEvoy, James E. See Cosgrove, Lee A.

McFegan, William See Hart, Frederick H.

McGee, Thomas D. Engineering manpower (1) 48*d*. See Howe, Robert A.

McGowan, H. Christopher, Male, Joseph A., and McLaren, Malcolm G. Formation of beta alumina-type ceramics, P (1) 34*h*.

McGroddy, James C. See Blum, Joseph M.

McGulloch, H. W. A. See Goesslig, H. H.

Mchedlov-Petrosyan, Otar P. See Kogan, N. P.

Mchedlov-Petrosyan, Otar P., Usherov-Marshak, Alexander V., Slepushenko, V. P., and Levchuk, G. A. Thermokinetic evaluation of the quality of gypsum (1) 3*f*.

Mchedlov-Petrosyan, Otar P., Usherov-Marshak, Alexander V., and Urzhenko, Anatoly M. Differential microcalorimetry of cement systems (1) 2*h*.

McHenry, K. D., Yonushonis, T., and Tressler, R. E. Low-temp. subcritical crack growth in SiC and Si_3N_4 (7) 183*d*.

McHenry, Vincent J. Glass breakage detector, P (1) 14*g*.

McIntosh, Arthur E. See Hartley, Kenneth

McIntyre, N. S., and Cook, M. G. X-ray photoelectron studies on some oxides and hydroxides of Co, Ni, and Cu (7) 189*b*.

McIntyre, Peter Cross talk in absorbing optical fibers (1) 6*j*.

McKeehan, Ernest R., Shawver, Bruce M., Schiro, Donald J., and Taft, William E. Control rod drive for reactor shutdown, P (5) 129*c*.

McKeever, S. W. S., and Hughes, D. M. Thermally stimulated currents in dielectrics (1) 47*a*.

McKelvey, Harold E. Cathodes for sputter-coating of glass sheets, P (7) 163*b*.

McKenzie, H. W. See Hamer, F. M.; McCourty, Ian A.

McKeown, D. Thermoelectrically cooled quartz microbalance (1) 33*g*.

McKetta, John J., and Cunningham, William A. (Editors) Encyclopedia of Chemical Processing and Design: Vol. I, A-Acr, B (7) 190*b*.

McKinney, Karl R. See Ganguly, B. K. ; Hasselman, D. P. H.

McKinney, Karl R., Chaskelis, H. H., and Freiman, Stephen W. Prediction of flaw sizes from acoustic emission measurements in ceramics (9) 237*c*.

McKinstry, Herbert A. See Buljan, S. T.

McLaren, Ashley B. See Ekstrom, Alfred

McLaren, Malcolm G. Characterization—the key to improved and new ceramic processes (1) 22*i*; Ceramic materials—processes and uses (5) 147*a*. See McGowan, H. Christopher; Yoon, Soo-Choon; Abrams, J. C.

McLaughlin, R. D. See Hadeishi, Tetsuo

McLaughlin, R. J. W. See Beyer, M. E.

McLendon, J. T. See Lamont, W. E.

McLeod, James E. Trona mine—soda ash production (3) 83*g*.

McMaster, Harold A. Glass sheet tempering blasthead, P (5) 112*j*.

McMaster, Harold A., and Nitschke, Norman C. Glass tempering system, P (1) 14*a*; Furnace for heat-treating glass sheet material, P (5) 112*a*; Glass tempering system, P (5) 112*j*; Roller hearth furnace for glass sheets, P (7) 162*i*; Glass treating furnace, P (9) 205*g*.

McMichael, W. J. See Vehida, S.

McMillan, P. W. See Harper, H. ; Partridge, G.

McMillan, P. W., and Nesvadba, P. Relation between statistical aspects of switching and the structure of chalcogenide glasses (1) 11*d*.

McMillen, Clarence See Hearn, Ralph E.

McMullin, W. S. See Ducker, W. L.

McMurdie, Howard F. See Levin, Ernest M.

McNish, Thomas G. Thermal insulator, P (1) 22*b*; Fibrous insulating materials, P (5) 121*i*.

McVay, G. L. See Baughman, R. J. ; Shelby, J. E.

McVay, T. L. See Browning, J. S.

McWillian, J. Scottish refractories—some tales of the early days (3) 68*i*.

Meacham, Jeffrey W. See Kiovsky, Joseph R.

Meads, R. E., and Malden, P. J. ESR in natural kaolinites containing Fe^{3+} and other transition metal ions (9) 231*j*.

Mecarelli, E. See Branchi, G.

Mechev, V. V. See Soboleva, T. R.

Mecholsky, John J., Jr. See Freiman, Stephen W.

Meckel, Lothar See Faulstich, Marga ; Gliemeroth, Georg

Medeisis, A., and Viscakas, J. Hall effect in polycrystalline materials (1) 39*h*.

Medrala, Andrzej See Czarny, Zdzislaw

Medrala, Jan See Czarny, Zdzislaw

Medvedev, M. V., Pashitskii, E. A., and Pyatiletov, Yu. S. Effect of the low-freq. peaks of phonon density states on the critical temp. of superconductors (1) 37*d*.

Medvedeva, O. A. See Samsonov, G. V.

Medvid, Richard J. See King, Walter C.

Mee, C. H. B. See Johnson, H. R.

Meerwald, Ekkehard, and Donne, Mario Dalle Fuel element for a reactor, P (5) 129*f*.

Megles, John E., Jr. See Galusha, Richard E.

Mehan, R. L. See Hillig, William B.

Mehrotra, C. L., and Singh, A. N. New technique of accurate measurement of strain by electric resistance strain gages (1) 32*g*.

Mehta, Ashok Maser (1) 26*f*.

Mehta, Madhu See Baird, R. J.

Mehta, P. K., and Gjorv, O. E. New test for sulfate resistance of cements (7) 176*g*.

Mehta, R. R., Silverman, B. D., and Jacobs, J. T. Depolarization fields in thin ferroelectric films (7) 170*d*.

Mehta, S. K. Studies in the system $CaSO_4$-H_2O (9) 197*a*.

Meignant, D. See Vanoverschelde, A.

Meijer, Paul H. E. See Gibson, John W.

Meilikhov, E. Z. See Aronzon, B. A.

Meinert, Norbert See Broemer, Heinz

Meiser, M. D. See Tressler, R. E.

Meissner, Helmuth E. See Elmer, Thomas H.

Melekhin, V. F. See Pavlov, Yu. A.

Melent'ev, A. D. See Vishnevskii, I. I.

Melfi, Adolpho J., and Pedro, Georges Alteration of manganiferous silicates and the exogenous formation of Mn deposits (3) 84*e*.

Melik-Akhnazarov, A. F. See Kostanyan, K. A. ; Tatevosyan, K. M.

Melikhov, I. V., Belousova, M. Ya., Rudnev, N. A., and Buludov, N. T. Fluctuations of the growth rate in microcrystals (9) 232*d*.

Meliksetyan, Laura A. See Melkonyan, Garegin S.

Melkonyan, Garegin S., and Meliksetyan, Laura A. Glass batch for melting silicate glass, P (7) 161*e*.

Melkonyan, R. G., Tarasov, B. V., Shvorneva, L. I., and Chepizhnyi, K. I. Processes during heat treatment of Kanazit (5) 101*f*.

Melkov, G. A. See Grankin, V. L.

Melkov, G. A., and Grankin, V. L. Effect of domain structure on the nonlinear properties of ferrites (9) 230*g*.

Melling P. J. See Mackenzie, K. J. D. ; MacKenzie, K. J. D.

Melling, Richard Glass toughening, P (9) 205*f*.

Mellows, Vincent E. Lining metal casting molds, P (7) 167*d*.

Mel'nik, M. T., and Shapovalova, N. N. Refractory concretes containing aluminous cement with an additive of active Al_2O_3 (1) 19*d*.

Mel'nikov, A. D. See Kuznetsov, Yu. D.

Mel'nikov, F. I. Design of refractory concretes with hydraulic binders (7) 150*f*.

Mel'nikov, N. I., Peregood, D. P., and Zhitnikov, R. A. Ag centers in glassy B_2O_3 (1) 45*j*.

Mel'nikov, V. I. See Kuz'menko, V. M.

Mel'nikov, Yu. T. See Desyatnik, V. N.

Melnikova, G. G. See Solovushkova, G. E.

Meloyan, S. S. Industrial testing of the production of an electrically melted mullite refractory with controlled sintering (1) 18*c*.

Melton, I. E. See Rand, B.

Melzer, K. See Hoehne, R.

Memmi, M. See Faccenda, V.

Men, A. N. See Vorob'ev, Yu. P.

Menashi, W. P., Aucoin, T. R., Shappirio, J. R., and Eckart, D. W. Recrystallization of Ba ferrite under high pressure O (1) 45*c*.

Mendelenko, A. K. See Tseitlin, L. A.

Mendelson, Mel I. Particle size distribution of coprecipitated Mn-Zn ferrite powders (7) 171*g*.

Mendheim, Juergen Construction units for kilns with firing temps. above 1750°C (7) 164*j*.

Mendiratta, M. G. See Petrovic, J. J.

Menelly, Richard A., and Sadoski, Tadius T. Fluorescent lamp containing In oxide, P (5) 112*j*.

Menessy, I. See Marx, F.

Menovsky, A. See Sechovsky, V. ; Smetana, Z. ; Sternberk, J.

Menoyo, Edgardo A. Calcite and dolomite deposits (3) 82*g*.

Mentges, G. Limestone quarrying and landscape preservation (3) 82*g*.

Menucci, Luis A. See Rossini, Angel R.

Menzel, D. See Wuestner, W.

Mercer, A. D. See Butler, G.

Mercey, Bernard, and Deschanvres, Alfred Comparison of different methods of crystal growth of Group II-IV-V_2 compounds (7) 179*j*.

Merchant, H. D. See Rapp, James E.

Mercier, Henri, and Jean, Robert U compounds, P (3) 83*j*.

Mercier, Jean, and Lakkis, S. Preparation of Ti lower oxides single crystals by chemical transport reaction (1) 44*i*.

Meredith, R. J. See Travers, D. N.

Merkin, A. P. See Danilov, V. I.

Merkulov, V. N. See Bashunin, A. I.

Merkulov, V. V. See Nekrasov, Z. I.

Merrett, G. See Simpson, L. A.

Merrin, Seymour Photoresponsive junction device having an active layer of altered conductivity glass, P (3) 62*b*.

Merrin, Seymour, Clifton, Jack K., and Katsigianopoulos, John S. Variable capacitance diodes employing a glassy amorphous material as an active layer, P (3) 77*b*.

Meshalkina, N. V., Strakhov, V. I., and Aksel'rod, L. M. Reaction of ZrO_2 with some metals (3) 67*c*.

Meshcheryakov, N. A., Berdov, G. I., and Pechenkina, A. N. Sintering and paramagnetic properties of ceramic materials based on Al_2O_3 and $Al(OH)_3$ with the addition of Ti and Mn oxides (5) 120*c*.

Meshcheryakov, V. F., Grechushnikov, B. N., and Kalinkina, I. N. Paramagnetic resonance of Fe^{2+} ions in the crystal lattice of $CaCO_3$ (1) 43*e*.

Meshik, A. F. See Al'bats, B. S.

Meshitsuka, Shunsuke See Takahashi, Hiroaki

Messenger, Joseph U. Lightweight cement, P (1) 4*a*.

Messier, D. R., and Gazza, G. E. Thermal decomposition of Al_2O_3-Si_3N_4 mixtures (3) 93*a*.

Messing, Ralph A. Immobilization of urease on porous TiO_2, P (3) 69*h*; Making porous inorganic bodies using water-soluble Zr compounds, P (3) 70*a*; Adsorption of proteins on glass surfaces and pertinent parameters for the immobilization of enzymes in the pores of inorganic carriers (7) 154*f*.

Messner, Georg Fabrication of pure Al_2O_3 and SiO_2-containing raw materials by leaching with HCl, P (9) 226*g*.

Metla, I. I., Neviditsyn, L. F., and Dzyba, L. V. Automated control of the operations of a stoking furnace for ceramic bodies (9) 224*g*.

Metselaar, R. See Larsen, P. K.

Metzger, Emil Granular expanded ceramic materials, P (7) 153*a*.

Meunier, Georges Agglomerating glass batch materials in a fluidized bed, P (1) 13*j*.

Mewis, J. Need for multiparameter theories in the analysis of thixotropic behavior (1) 42*j*.

Meyer, A. See Barraclough, K. G.

Meyer, K. See Wollbrandt, J.

Meyer, R. See Broussaud, D.

Mezentseva, A. N. See Bugaev, N. F. ; Simonov, K. V.

Mezentseva, L. P. See Bondar, I. A.

Michalek, Z. See Wykrent, C.

Michalko, Edward Alumina spheres, P (3) 83*j*.

Michel, D. See Perez y Jorba, M.

Michel, Max See Fort, Jean P.

Michelotto, G. See Forniasiero, M.

Michikami, Osamu See Yano, Soichi

Midgley, Ann See Midgley, H. G.

Midgley, D. See Safa, M.

Midgley, H. G., and Midgley, Ann Conversion of high-Al_2O_3 cement (7) 150*a*.

Mieher, R. L. See Bhartia, P. K.

Mierzwa, Janusz Flow method for measurement of aggregate specific surface (7) 151*c*.

Migolinets, I. M. See Kopinets, I. F.

Mihailescu, I. N See Apostol, I.

Mihajlovic, P. See Nikolic, P. M.

Mihara, Toshihiro See Kawamata, Tadashi

Mikami, Itsuo See Takeuchi, Hiroshi

Mikhail, R. Sh., Abo-El-Enein, S. A., and Abd-El-Khalik, Mohamed Hardened slag-cement pastes of various porosities: II, Water and N adsorption; III, Surface area in relation to pore structure (9) 195*d*.

Mikhail, R. Sh., Turk, Danica H., and Brunauer, Stephen Dimensions of the average pore, the number of pores, and the surface area of hardened portland cement paste (3) 51*a*.

Mikhailov, Yu. F., Popov, A. D., Pivnik, L. Ya., and Chukreeva, E. I. Grog-free ladle brick from raw kaolin (1) 17*i*.

Mikhailova, G. A. See Bystrova, V. I.

Mikhailova, P. See Gencheva, G.

Mikhailova-Bogdanskaya, Z. A. See Budov, V. M.

Mikhailyuk, I. P. See Kalikhman, V. L.

Mikhalkovich, S. I. See Patrin, P. A.

Mikhashchuk, E. P. See Karpinos, D. M. ; Volkogon, L. M.

Mikheeva, M. I. See Golyanov, V. M.

Mikhelkin, V. I. See Sedykh, T. S.

Mikhel'son, A. V. See Sudakova, N. P.

Mikhlin, E. Ya., and Chkuaseli, V. F. Kinetics of the early-stage gas porosity development caused by bubble coalescence (5) 129*a*.

Miki, M. Liners for feeder heads used in metal casting, P (1) 21*g*.

Mikler, Johann, and Reiffenstein, Erich Problems connected with direct determination of specific heats by differential scanning calorimetry (7) 176*a*.

Mikoda, Masaaki See Kuroda, Takayuki

Mikoda, Masaaki, and Hikino, Tadashi Glass composite coating for an integrated circuit protection, P (9) 204*j*.

Mikoda, Masaaki, Hikino, Tadashi, and Hayakawa, Shigeru SiO_2 glass composition for magnetic heads, P (9) 206*d*.

Mikol'skii, Yu. N., and Kuz'o, I. V. Drive power consumption of rotary kiln (1) 2*i*.

Mikonenko, V. G. See Sleptsov, V. S.

Mikoshiba, N. See Sasaki, Hiromu

Mikula, P. See Sedlakova, L.

Mikuriya, Hidetoshi See Kubo, Kazuhiko

Mikutskii, V. G. See Zakharov, G. M.

Milenkov, R. See Marinov, M.

Miller, T. J. See Fleming, James W., Jr.

Miles, Clifford G. See Birchall, James D.

Miles, Lyndon J. See Jones, Ivor W.

Milestone, N. B. Effect of lignosulfonate fractions on the hydration of tricalcium aluminate (7) 151*h*.

Milewska, Aurelia, and Pieniazek, Tadeusz Usability of washer lime-sludge wastes for producing cement (9) 197*e*.

Miliusite, R. See Bareikis, V.

Miljukas, E. I., Janulis, W. I., and Skrinska, A. Ju. Oil metering system for burners in tunnel kilns (7) 176*h*.

Mill, B. V. Crystallization of germanate and silicate garnets from solution in molten salts (9) 228*f*. See Gapeev, A. K.

Miller, Alan R. Vaporization of Cd oxide by Knudsen effusion (5) 147*a*.

Miller, Alfred H., and Wheat, Lawrence C. Sheet article transfer apparatus, P (5) 114*c*.

Miller, C. E. See Chen, H. S.

Miller, David J. See Wiewiorowski, Tadeusz K.

Miller, David M. Sintered cordierite glass-ceramic bodies, P (5) 114*c*; Refractory celsian glass-ceramics, P (9) 206*c*.

Miller, Fred C. See Whittaker, Mack P.

Miller, J. E. See Sharp, E. J.

Miller, M. L. How to ease the chore of thermocouple circuit testing (7) 176*d*.

Miller, R. P. See Barry, T. I.

Miller, Richard C., and Payne, Charles C. Correcting for nonuniformity of a SiO_2 sol coating, P (5) 127*b*.

Miller, Thomas J. See Jaeger, Raymond E.

Millero, Frank J. See Fine, Rana A.

Millett, E. J. See Clegg, J. B.

Mills, Alfred L., Lillyman, Ernest, and Bell, Peter G. Processing of irradiated nuclear reactor fuel, P (9) 221*e*.

Mills, George J. See Waterman, Dwight

Mills, K. C. See Andon, R. J. L.

Milne, David J. See Holliday, Robin D.

Milne, David J., and Holliday, Robin D. Thermodynamics of gas-solid reactions for purification of bauxite at moderate temps. (3) 83*f*.

Mil'vidskii, M. G. See Gimel'farb, F. A. ; Karataev, V. V. ; Lakeenkov, V. M.

Mimura, Nobuyuki See Tomita, Yoshimori

Mimura, Shigeru, and Sasaki, Yoshinobu Improvement in technique for refractory lining of dead mixer (5) 117*a*.

Minaev, V. S. See Savel'eva, M. V.

Minai, Kiichi, Inada, Isamu, Ozawa, Kenji, and Okochi, Kenji Ferroelectric ceramic compositions, P (1) 28*a*.

Minakawa, Katsuharu, and Suzuki, Katsuhiko Low melting-point Pb borate crystalline glass, P (9) 205*b*.

Minaki, Toshiaki See Aoki, Susumu

Minakov, A. G., and Dvorkina, S. E. Mfg. of mat glazes for slag glass-ceramics and marbled glass (1) 23*i*.

Minakov, V. A. See Koz'min, M. I.

Minakov, V. A., Pavlova, V. N., Naumenko, T. A., and Perepelenko, V. N. Ceramming of slag glasses (5) 104*j*.

Minakov, V. A., Zhunina, L. A., Min'ko, N. I., and Zhemela, N. A. Influence of OH^- groups on the F content and properties of glasses in the system $CaO-Al_2O_3-SiO_2$ (9) 201*c*.

Minami, Tsutomu, Fujikawa, Nobuyoshi, Hattori, Makoto, and Tanaka, Masami Electrical properties of As_2Se_3-based oxychalcogenide glasses (1) 7*f*.

Minamitani, Yoshihiro See Isohata, Susumu

Minegishi, Keiichi, and Daimon, Masaki Studies of mechanisms of cement hydration by means of calorimetry (9) 196*j*.

Min'ko, N. I. See Minakov, V. A.

Minnear, W. P. See Siebeneck, H. J.

Minnick, Leonard J., Webster, William C., and Smith, Charles L. Lime-fly ash-sulfite compositions, P (1) 4*a*.

Minoura, Rihachi See Kubo, Kazuhiko

Mirani, H. V. M., Harthoorn, R., Zuurendonk, T. J., and Helmerhorst, S. J. Influence of the ferromagnetic transition of self-diffusion in bcc FeSi (5) 140*j*.

Mirets, L. Z. See Peka, G. P.

Mirkin, I. K., Bykhovskii, V. N., Smirnov, Yu. M., and Pechatinkov, G. G. Instrument for controlling the thickness of asbestos-cement pipes and the pressure during their formation (9) 195*i*.

Mirkin, L. I. Dissociation of semiconductor compounds under the action of a laser beam (3) 86*c*.

Mirkin, L. V., and Sokolov, V. A. Phase transformations during the firing of a zircon fluoride charge (9) 237*a*.

Mirkin, L. V., Sokolov, V. A., and Galdina, N. M. Granulation of a baddeleyite-corundum charge (3) 65*h*.

Mirkovich, V. V. Thermal conductivity of mica as a function of temp. and direction of heat flow (1) 47*e*.

Mironov, I. M. See Grosheva, V. M.

Mironov, Yu. A. See Goleminov, N. G.

Misdolea, C. See Vilcu, Rodica

Misek, J. See Sikula, J.

Mishel, V. E. See Venzel, L. I.

Misiuk, A. See Levitin, R. Z.

Miska, Kurt H. How to obtain reliable glass- and ceramic-to-metal seals (9) 201*a*.

Mistler, R. E., and Coble, R. L. Grain-boundary diffusion and boundary widths in metals and ceramics (9) 232*e*.

Mistler, Richard E. See Shanefield, Daniel J.

Mitchel, D. Changing of raw material supplies ball clay (7) 168*e*.

Mitchell, Richard, Read, Eileen, and Stevens, Richard Acoustic surface-wave devices using monocrystalline Bi Si oxide substrate, P (9) 219*a*.

Mitev, T., Tinkov, S., Kolarov, K., and Kunchev, I. Possibility of substituting Kachitsa plastic clays in the production of electrical porcelain by the Bukovluk or Klisuritsa clay (9) 215*j*.

Mitin, V. P. See Simonov, K. V.

Mitin, V. V. See Baidakov, V. V.

Mitkova, El. See Levcheva, Khr.

Mitoff, Stephan P., Powers, Robert W., and King, Randall N. Beta alumina articles, P (1) 28*a*.

Mitomo, Mamoru Effect of O partial pressure on nitridation of Si (3) 86*f*.

Mitomo, Mamoru, and Sharp, John H. Oxidation of α- and β-Si_3N_4 (5) 143*f*.

Mitomo, Mamoru, Tsutsumi, M., Bannai, E., and Tanaka, T. Sintering of Si_3N_4 (5) 126*h*.

Mitra, N. K., Roy, K. L., and Mandal, R. K. Studies of aluminosilicate hydrogel: VII, Characteristics of electrolyte sorption and its bearing on cation exchange (9) 240*d*.

Mitra, N. K., Roy, K. L., and Mitra, S. Kinetics of thermal dehydration of synthetic Na aluminosilicate hydrogel (7) 183*i*.

Mitra, S. Kinetics of quartz transformation (3) 89*j*. See Mitra, N. K.

Mitra, S. K., Banerjee, A. K., Roy, L. C., and Sinha, A. K. Size separation in a pneumatic separator (9) 226*a*.

Mitrokhin, V. A., Lyutikov, R. A., and Yurkova, R. S. Variation in the Zr carbide lattice period in the homogeneity region (5) 147*b*.

Mitrokhin, V. S. See Kvyatkovskaya, K. K. ; Pavlov, V. F.

Mitsche, Roy T. Spheroidal Al_2O_3 particles, P (7) 168*j*.

Mitsushima, Shozo See Onishi, Toshiyasu

Mitsuyu, T., Wasa, Kiyotaka, and Hayakawa, Shigeru Piezoelectric thin films of rf-sputtered $Bi_{12}PbO_{19}$ (9) 237*f*.

Mitsyuk, B. M. Mechanism of quartz formation under hydrothermal conditions (1) 42*c*.

Mittra, S. K., Ghosh, B. N., Rao, B., and Swaminathan, K. S. Development of phosphate-bonded high-alumina monoliths (3) 64*d*.

Mityushov, N. A. See Perepelitsyn, V. A.

Miura, Shinsuke, Marutake, Masakazu, Unoki, Hiromi, and Uwe, Hiromoto Composition dependence of phase transition temps. in the mixed-crystal systems near $SrTiO_3$ (1) 36*b*.

Miwa, Kiyoshi See Moriguchi, Toshio

Miwa, Naoto See Oki, Masami ; Soda, Kazuya

Miyabe, Hisako See Yamaguchi, Goro

Miyabe, Hisako, and Yamaguchi, Goro Crystal structure of defective spinel, $MgO.3Al_2O_3$ (9) 228*b*.

Miyagi, Yoshihiro See Shirasuka, Kouhei

Miyaishi, Munehiro Folk custom related to the production of ceramic ware in Seto, Aichi Prefecture, Japan: VII, Forming roofing tile (1) 1*c*; VIII. Forming stools (1) 1*d*; IX, XI, XII (3) 49*b*.

Miyamoto, Akira See Shimada, Noburo

Miyamoto, Masafumi, Hashiba, Minoru, Nurishi, Yukio, and Hibino, Taizo Mechanism of the various metal fluorides on the formation process of Mg aluminate (3) 89*e*.

Miyashita, T., Edahiro, Takao, Takahashi, S., and Horiguchi, M. Eccentric-core glass optical waveguide (9) 200*b*.

Miyashita, Tadashi See Kobayashi, Soichi

Miyata, Kenichi See Nakahara, Yoshiko

Miyata, Kenichi, and Nakahara, Yoshiko Preparation of inorganic powders by interfacial reaction method: I, Surface characteristics of the spherical particles of alkaline earth metal silicates (9) 237*e*.

Miyata, Shigeo Synthesis of hydrotalcite-like compounds and their structures and physicochemical properties: I, The systems Mg^{2+}-Al^{3+}-NO_3^-, Mg^{2+}-Al^{3+}-Cl^-, Mg^{2+}-Al^{3+}-ClO_4^-, Ni^{2+}-Al^{2+}-Cl^-, and Zn^{2+}-Al^{3+}-Cl^- (7) 187*d*.

Miyauchi, Katsuki, and Toda, Gyozo Effects of crystal-lattice distortion on optical transmittance of the $(Pb,La)(Zr,Ti)O_3$ system (1) 25*a*; Effects of crystal lattice anisotropy on optical transmittance of ferroelectric PZT systems (9) 217*h*.

Miyazaki, Hidetoshi Transformation of $CaSO_4$ dihydrate into hemihydrate in liquid water (7) 153*e*.

Miyazawa, Makoto See Moriguchi, Sanseki

Miyoshi, Jun See Momose, Keigo

Mizuno, Katsuaki See Kubo, Kazuhiko

Mizuno, Masao, Berjoan, R., Coutures, J. P., and Foex, Marc Phase diagram of the system Al_2O_3-CeO_2 at liquidus temps. (1) 43*g*; Phase diagram of the system Al_2O_3-La_2O_3 at elevated temps. (1) 43*h*.

Mizuno, Masao, Yamada, Toyoaki, and Noguchi, Tetsuo Liquidus curve in the system Al_2O_3-Ga_2O_3 as measured using a solar furnace (1) 41*a*.

Mizuno, Minoru, and Iwata, Tomoji Removing SO_2 and NO_x simultaneously from the exhaust of a combustion furnace, P (9) 225*a*.

Mizuta, Susumu, and Yanagida, Hiroaki Effect of particle size and adsorbed water on sintering of CaF_2 (3) 86*g*.

Mizutani, Masayoshi See Komatsu, Noboru

Mizutani, Nobuyasu, and Kato, Masanori Apparatus for and applications of differential thermal gas analysis (3) 79*d*.

Mizutani, Nobuyasu, Kitazawa, Akio, and Kato, Masanori DT gas analysis (1) 32*g*.

Mizutani, Nobuyasu, Tajima, Yo, and Kato, Masanori Phase relations in the system Y_2O_3-TiO_2 (5) 143*f*.

Mizutani, Yoshizo See Katada, Tadashi

Mizzoni, Mary Splann Correlation of dielectric dispersions with electronic and ionic conduction mechanisms in glass (1) 6*h*.

Mlavsky, Abraham I., and Pandiscio, Nicholas A. Apparatus for growing crystalline bodies from the melt, P (3) 76*a*.

Mobley, Burton L. See Pullen, Joseph B.

Mobley, Carroll E. See Maringer, Robert E.

Mochida, Norio See Takahashi, Kentaro

Mochida, Norio, and Takahashi, Kentaro Properties and structure of glasses in the Na_2O-As_2O_3 system (3) 58*i*.

Modebadze, O. E. Gold-to-glass joint, P (9) 219*a*.

Modenov, Vitaly P. See Vereshchagin, Leonid F.

Moehring, Hans Special enameled steel—still the only satisfactory material for water boilers (3) 54*g*.

Moertl, Guenther L. Process of producing refractory products based on MgO and Cr_2O_3, P (9) 214*a*.

Mogab, C. J. Measurement of film thickness from lattice absorption bands (1) 32*f*.

Mogab, C. J., and Leamy, H. J. Conversion of Si to epitaxial SiC by reaction with C_2H_2 (9) 228*e*.

Mogilenskii, V. I. See Ganyuchenko, V. M.

Mohamed, A. H. See Eissa, N. A.

Mohamed, Farghalli A., and Langdon, Terence G. Creep behavior of ceramic solid-solution alloys (3) 85*f*.

Mohanty, C. See Ananthanarayanan, K. P.

Mohn, Heinrich See Baeumler, Peter

Mohri, Junichi See Kakegawa, Kazuyuki

Moir, G. K., Gard, J. A., and Glasser, F. P. Crystal chemistry and solid solutions among the pseudowollastonite-like polytypes of $CaSiO_3$, $SrSiO_3$, and $BaSiO_3$ (5) 136*c*.

Moir, G. K., and Glasser, F. P. Solid solutions and phase equilibria in the systems Na_2SiO_3-$SrSiO_3$ and Na_2SiO_3-$CaSiO_3$-$SrSiO_3$ (3) 91*h*.

Moiso, G. D. See Berbenni, P.

Mokhosoev, M. V. See Zvoleiko, P. T.

Mokshantsev, G. F. See Bulanov, V. Ya.

Moldenhauer, W. See Brueckner, W.

Molina, T. V. See Zamyatin, S. R.

Molinari, G. Role of methane as an energy source in Italy (9) 224*f*.

Molnar, B. J., and Dove, D. B. Structure of amorphous Ge-Se thin films (1) 46*e*.

Molnar, Erzsebet, and Wagner, Endre Dependence of the abrasion resistance of porcelain glazes on the abrading material (5) 123*d*.

Molodynska, W. See Ostachowicz, J. ; Wasilewska, M.

Molony, Bruce C. See Ridge, Mayhew J.

Momiyama, Iwao See Nakajima, Jun

Momose, Keigo, Miyoshi, Jun, and Sakada, Yasuhira Solid C fuels [glass hardner], P (9) 206*f*.

Momot, J. Role of TV in the glass and refractory industry (9) 203*d*.

Monahan, Jack J. See Bahnck, Norman

Monchamp, Roch R. Preparation and properties of crystalline laser oxide materials (7) 159*f*. See Weber, Marvin J.

Monfort, Y., Vizot, J., and Deschanvres, A. Defects in some chalcopyrite structures (5) 137*d*.

Monks, Joseph R. See Grubb, Everett F.

Monma, Hideki See Kanazawa, Takafumi

Monma, Hideki, and Kanazawa, Takafumi Hydration of α-tricalcium phosphate (7) 183*c*.

Monneraye, Marc, Monnier, Michel, and Lantaires, Jacques Li Zn borosilicate glass sealing material, P (3) 61*d*.

Monnier, Miche See Monneraye, Marc

Monnier, R. See Hinden, J.

Montean, Marcela See Teoreanu, I.

Montiglio, Ugo, Basile, Giampiero, Aspes, Pierfrancesco, and Foco, Luigi Preparation of ferromagnetic CrO_2 having granulometric and magnetic characteristics varying within wide limits as well as a new CrO_2 of particular granulometric characteristics, P (3) 83*f*.

Montrimas, E. See Petretis, B. ; Varaneckas, J.

Monzi, Tullo J. Maintaining paired glass sheets in alignment during bending, P (3) 61*e*.

Mookerjee, S. K., and Niyogi, S. K. Relation between time of gelation and concentration of added electrolyte in silicic acid sol (1) 45*e*.

Moon, D. W., Aitken, John M., MacCrone, R. K., and Cieloszyk, G. S. Magnetic properties and structure of xFe_2O_3, $(1-x)[BaO.4B_2O_3]$ glasses (5) 107*j*.

Moore, A. R. See Emmanuel, A.

Moore, Alice E. Sequence of compound formation in portland cement rotary kilns: I (9) 196*f*.

Moore, D. A. See Bilsby, C. F.

Moore, F. See Holmes, W. H.

Moore, G. David See Ritter, John E., Jr.

Moore, G. S. M., and Rose, H. E. Dissolution of powdered quartz (9) 229*e*.

Moore, Thomas W., Jr. See Graham, Paul W. L.

Moorthy, V. K. See Dalvi, P. Y. ; Zope, B. D.

Morain, M. See Vogt, J. J.

Morain, M., and Vogt, J. J. Heat control at the work place of a blowing machine operator (5) 107*d*.

Moran, James J. See Baumgartner, Jon B.

Morar, Gheorghe See Lukacs, Ileana

Morariu, M. See Solacolu, S.

Moreau, Wayne M., and Ting, Chiu H. High-sensitivity positive resist layers and mask formation process, P (5) 127*d*.

Morell, Antoinette New procedure to build wear resistant magnetic heads (7) 171*a*.

Morelock, C. R. See Hillig, William B.

Moret, Jacques See Astier, Rene

Moret, Jacques, Demazeau, Gerard, Philippot, Etienne, and Maurin, Maurice High-pressure synthesis and crystal structure of $CuTeO_3$ (7) 182*a*.

Moreton, Roger, and Watt, William C fiber, P (1) 21*c*.

Moretti, C. Manufacture of glass tubes: III, Mechanical manufacture of glass tubes (5) 108*b*.

Morgan, C. S., Federer, J. I., and Tennery, V. J. Preparation

of ceramic forms using a removable mandrel (1) 29*i*.
Morgan, C. S., McCorkle, K. H., and Powell, G. L. Pore growth in sintered ThO_2 (5) 144*b*.
Morgan, David W. Heat-absorbing glasses, P (7) 162*a*. See Hares, George B.
Morgan, J. W. See Lawrence S. J.
Morgan, P. E. D. Comment on "Reaction of Si_3N_4 with Al_2O_3 and Y_2O_3" and "Si Y oxynitrides" (3) 85*c*; Low-temp. synthetic studies of beta aluminas (7) 183*e*.
Morgun, L. V. See Karklit, A. K.
Mori, Katsuo See Abe, Yoshihiro
Mori, Kentaro See Aoki, Susumu
Mori, Masasi Formation of $CaCO_3$ by blowing CO_2 in the manufacture of nitric phosphate and its effect (5) 99*e*.
Mori, Masasi, Watanabe, Shuichi, Wakayama, Haruo, and Ando, Jumpei Removal of F from waste waters: II, Removal as fluoraptite (7) 175*a*.
Mori, Takaro See Kawano, Toshio
Moridi, G. R. See Hogarth, C. A.
Moriguchi, Sanseki, Abe, Hiroshi, Saito, Kiyoshi, and Miyazawa, Makoto Removing N oxides from plant exhaust, P (5) 130*g*.
Moriguchi, Toshio, Miwa, Kiyoshi, and Shibuya, Takehiro ZnO-B_2O_3-SiO_2 glass coating compositions containing Ta_2O_5 and a semiconductor device coated with them, P (3) 62*b*.
Morikawa, Hideki See Okada, Kiyoshi
Morin, F. J. See Wolfram, T.
Morino, Yoshihiro See Suzuki, Narishige
Morioka, Koichi See Omori, Shigemi
Morioka, Makoto See Kawamura, Masao
Morioka, Yoshio, Aoyama, Kazuki, Kashiwada, Shigeru, and Kobayashi, Junichi Compression of capillary liquid in porous alumina (5) 136*e*.
Morita, Kenichi, Kinoshita, Yoshiro, and Kashio, Shigetora Producing C fibers from organic fibrous material, P (5) 122*e*.
Moriya, Taro See Tsuchiya, Toshio
Moriya, Yoshiro Effects of crystal size, crystal composition, and irradiation conditions on the uv-induced absorption spectra in the photochromic glasses (3) 56*e*; Speculation on an absorption center induced in photochromic glass containing Ag halide crystals (9) 203*g*. See Ueno, Tsutomu
Moriya, Yoshiro, Kawai, Teruo, and Yokoe, Akira Ionic diffusion in glasses (3) 57*h*.
Moriyoshi, Yusuke See Takahashi, Ryuji
Morman, Frank C. Zn lignosulfonate stabilizing binder solution for MgO refractory forming mixtures, P (3) 70*f*.
Morosin, B. See Johnson, Ralph T., Jr.
Moroz, I. I. See Vasil'eva, L. Ya.
Moroz, I. I., and Khariton, Ya. G. Strength of porcelain during use (3) 71*d*.
Moroz, I. I., and Komskaya, M. S. Structural-mechanical analysis of the quality of wet-treated kaolins (1) 46*d*.
Morozenskii, V. L., and Romanchuk, V. E. Calculation of creep and shrinkage of Keramzit concrete (7) 150*a*.
Morozov, V. V. See Samsonov, G. V.
Morozov, Yu. I. See Karpinos, D. M.
Morrette, Richard A. See Kontz, Robert F.
Morris, Earl F. See Crinkelmeyer, Oliver W.
Morrison, Albert R., Haynes, Harold L., and Bell, Reuben H. Glass fibers coated with a size containing starch esters of isoalkanoic acids, P (5) 112*g*.
Morrison, George H., and Slodzian, Georges Ion microscopy (3) 80*f*.
Morrison, S. J. Quality management in glass container production (5) 109*b*.
Morsi, S. E. See El-Shamy, T. M.
Mortier, W. J. Statistical thermodynamic approach to the distribution of cations in silicate minerals (7) 187*a*.
Mortier, W. J., Pluth, J. J., and Smith, J. V. Three-coordinated Mg in dehydrated offretite (9) 241*h*.
Mortland, M. M. See Berkheiser, V. ; McBride, M. B.
Morton, Dale E. Optical thin film coater, P (7) 173*d*.
Morton, Jerry R. See Gates, Lewis E.
Morton, Michael John See Kenworthy, Jeffrey Stuart
Mosel, B. D., Mueller-Warmuth, Werner, and Dutz, Hubert Structure of alkali silicate glasses as studied by ^{29}Si NMR absorption and adiabatic fast passage (1) 11*e*.
Moshkina, M. K., Kalinina, R. I., and Volkovskaya, A. I. Isothermal section of the system K_2O-CaO-Al_2O_3-H_2O at 280°C (1) 41*a*.
Moshnenko, V. M. See Chernov, R. V.
Moshnenko, V. M., Delimarskii, Yu. K., and Chernov, R. V. System NaF-KF-SiF_4 (9) 241*a*.
Mosin, Yu. M. See Balkevich, V. L.
Moskalenko, V. F. See Shcheglov, S. I.
Moskalev, A. K. See Baisa, D. F.
Moskowitz, J. W. See Boring, Michael
Moss, Robert H., Swinehart, Carl F., and Spicuzza, William F. Hot-pressable MgF_2, P (3) 83*d*.
Mosser, A., Bovier, C., and Burggraf, C. Kikuchi reflection patterns of single crystals of MgO, Al, Si (9) 234*a*.
Mostetzky, Heinz Two models for the evaluation of the hydroplasticity of ceramic masses (7) 170*b*.
Motiu, Emilia See Lucaci, Illeana
Motojima, Seiji, Takahashi, Yasutaka, and Sugiyama, Kozoh Selective growth of NbO whiskers (5) 145*b*.
Motoki, Hideo See Nakamura, Ryuji
Motornaya, A. A. See Eremenko, V. V.
Motoyama, Muneyuki See Tanaka, Minoru
Mott, Nevill Electrons in glass (9) 200*g*.
Motta, Salvatore, Rosen, Bernard W., and Vasilos, Thomas Honeycomb reinforced material [SiO_2],P (3) 69*g*.
Moulson, A. J. See Atkinson, A.
Moure, C. See Capel, F.
Mourier, Marcel Apparatus for investigating the electrostatic properties of powders, P (7) 177*a*.
Mourikis, S. See Varotsos, P.
Moussa, M. R. See Ammar, M. M.
Moutran, R. F. See Tricker, M. J.
Moya Corral, J. S. See Garcia Verduch, A. ; Martinez Caja, L.
Moya Corral, J. S., and Garcia Verduch, A. Resistance to thermal shock of β-eucryptite (1) 45*g*.
Moya Corral, J. S., Garcia Verduch, A., and Hortal, M. Thermal expansion of β-eucryptite solid solutions (3) 93*b*.
Moynihan, C. T. See Boesch, L. P. ; DeBolt, M. A.
Moynihan, C. T., Easteal, A. J., DeBolt, M. A., and Tucker, J. Dependence of the fictive temp. of glass on cooling rate (3) 56*d*.
Moynihan, C. T., Easteal, A. J., Tran, D. C., and Wilder, J. A. Heat capacity and structural relaxation of mixed-alkali glasses (5) 107*b*.
Mrowec, Stanislaw Structural Defects and Atom Diffusion in Ionic Crystals, B (9) 243*h*. See Bartkowicz, Irena ; Fryt, Ewa
Mrowec, Stanislaw, Stoklosa, Andrzej, and Szczawinska, Elzbieta New method of calculating rational values of parabolic rate constants for the oxidation of metals and alloys (1) 42*b*.
Mrowec, Stanislaw, Walec, Tadeusz, and Wojcikiewicz, Tomasz Semiconducting properties and defect structure of NiO-Cr_2O_3 solid solutions (1) 45*h*; Effect of Cr on the structure of point defects in NiO (7) 180*i*.
Mrozinski, J. See Jezowska-Trzebiatowska, B.
Muan, Arnulf Phase relations in Cr_2O_3-containing systems at elevated temps. (5) 143*f*.
Mucha, Richard C. See Weingrad, Saul
Muche, J. See Bremer, H.
Muehlbauer, Alfred See Keller, Wolfgang
Mueller, A., Schmidt, K. H., and Zint, U. Vibrational spectra and force constants of MoS_3Se^{2-} and $WSSe_3^{2-}$ (9) 242*c*.
Mueller, Ernst, and Popovic, Dragan Carrying frame for giant glass sheets, P (3) 60*b*.
Mueller, Gerd Partly crystallizable seal, P (1) 15*a*.
Mueller, J. See Lehnhaeuser, W.
Mueller, Peter Determination of the conduction type in high-resistivity solids by thermally stimulated depolarization measurements—amorphous As_2Se_3 (3) 85*j*.
Mueller, Wolfgang See Ludwig, Udo
Mueller-Buschbaum, Hanskarl See Keller, Hans Loffar ; Scheunemann, K.
Mueller-Warmuth, Werner See Mosel, B. D.
Muenchberg, Wolfgang See Obst, Karl-Heinz
Muenk, R. Planetary coolers for large rotary kilns (5) 100*j*.
Muenz, Wolf D. Electric thin-film circuit, P (7) 172*c*.
Muhammad, Fazal, and Hassan, Mehdi Reduction of Ziarat laterite (3) 83*b*.
Muhlstadt, William J., and Schornhorst, James R. Control of thermal convection in a float glass forming chamber, P (5) 112*a*.
Mui, D. Repair of damaged insulation tiles (7) 166*f*.
Mujumdar, N. S., and Gajendragadkar, S. K. Disposal of industrial waste by deep well injection (3) 93*b*.
Mukerjee, S. N. See Sharma, B. L.
Mukerji, J. Fixation of high level nuclear waste in glass for ultimate disposal: I, General aspects (7) 173*f*. See Sanyal, A. S.
Mukerji, J., and Kayal, P. B. Reaction of $CsNO_3$ and $RbNO_3$ with natural aluminosilicates (1) 44*i*; Fixation of high level nuclear waste in glass for ultimate disposal: III, Thermal decomposition of fission product nitrates and their reaction with some glass batch additives (7) 173*g*.
Mukha, A. G. Bisembaev deposit of K-rich feldspar raw material (9) 225*d*.
Mukherjee, B. See Basu, M. K.
Mukhina, R. E. See Zhechkova, L. A.
Mukogawa, Masashi, and Takagaki, Takashi Semiconductor integrated circuits with improved isolation structure, P (1) 29*g*.
Mulay, L. N. See Houlihan, John F.
Mulder, Cornelis See Schmitz, Albert
Mulikova, G. M. See Kirovskaya, I. A.
Mullin, A. Kh. See Bulanov, V. Ya.
Mullin, John W. See Larson, Maurice A.
Mumford, Eustace H., and Rieck, Albert W. Adjustable stroke invert drive motor for a glass-forming machine, P (3) 60*f*.
Mummert, John R. See Colvin, Floyd E.
Munakata, Motosuke See Ono, Setsuko
Mund, Konrad See Hoehne, Karl
Munoz-Merino, Elias SiO_2-Si interface resistor—new component for micropower integrated circuits (1) 27*i*.
Munson, Ronald A., and Sheppard, R. A. Natural zeolites—their properties, occurrences, and uses (9) 225*g*.
Muntean, Marcela See Rusu, Ecaterina
Murachi, Mikio See Kondo, Katsumi
Murakami, Toshiaki, and Yamaji, Akihiko Dy-doped $BaTiO_3$ ceramics for high voltage capacitor use (9) 217*f*.
Muralidhar, J. See Thakur, R. S.
Murase, Yoshio See Kato, Etsuro
Murashko, N. I. See Goryachev, Yu. M.
Murashko, N. I., Suprunenko, P. A., Goryachev, Yu. M., and Kal'naya, G. I. Magnetic properties of ternary Cr chalcogenide powders (3) 74*c*.
Murashko, R. E., Sumarokov, V. N., and Struk, L. I. Hydrostatic pressure-forging of crucibles made of TiB_2 and AlN (9) 210*b*.
Murasik, A., Leciejewicz, J., and Zygmunt, A. Magnetic properties of UPd_4 (3) 89*b*.
Murat, M. Morphology and crystal structure of natural and synthetic Ca sulfates: III, Synthetic dihydrates (5) 142*j*; Morphology and crystal structure of natural and synthetic Ca sulfates: IV, Studies of orthorhombic anhydrites (9) 195*e*.
Murata, Hiromu See Yamamoto, Akio
Murata, Michihiro, and Omatsu, Masayuki Differential reaction rate determination of Ba orthotitanate in $BaTiO_3$ powder (3) 72*j*.
Murata, Michihiro, and Wakino, Kikuo Chemical preparation of PLZT powder from aqueous solution (7) 170*a*.
Murata, Yorihiro Cellular fused SiO_2, P (7) 167*e*.
Murley, J. R. Aqueous pollutants and their effect on the environment (5) 102*i*.
Murogov, Viktor M. See Illiunin, Vladimir G.
Muroi, Hitoshi See Suzuki, Motoaki
Murov, L. I., Sassa, V. S., and Prudkina, G. A. Refractory concrete for lining vacuum furnaces, P (1) 22*b*.
Murovets, N. A. See Krasnomovets, A. V.
Murphy, C. B. Thermal analysis (9) 223*h*.
Murr, Lawrence E. Interfacial Phenomena in Metals and Alloys, B (7) 190*i*.
Murr, Lawrence E., and Stein, Charles (Editors) Frontiers in Materials Science—Distinguished Lectures, B (7) 190*j*.
Murray, H., and Tosser, A. Photoconduction and photovoltaic effects in pulverized thin layers of ZnS (1) 26*j*.
Murray, Ransome J., and Brown, Arthur W. Early strength cements, P (7) 153*a*.
Murri, R. See Manfredotti, C.
Murthy, C. S. See Chakravorty, D.
Murthy, M. K., and Topping, J. A. Thermal expansion behavior of B_2O_3 glass (1) 12*c*.
Murty, Hari N. See Economy, James
Musaev, G. G. See Kamilov, I. K.
Muschalla, Bernd Effect of batch charging on convection patterns and amber glass quality—a case history (3) 56*j*.
Musial, W. See Hawrylak, H.
Musil, J. See Bardos, L.
Mustoe, David L. See Fenerty, Michael J.
Muszynski, Roman See Libienko, J. P.
Muta, Akinori See Tsukuda, Yasuo
Muto, Katsutoshi See Okamoto, E.
Mutsaers, C. A. H. A. See Boonstra, A. H.
Muuss, Harry, and Zipperer, Michael Light scattering measurements on thermally stressed glass (1) 9*c*.
Myagkov, V. A. See Kocho, V. S.
Myasnikov, A. A., Rozhanskii, A. I., Shelegeda, A. I., and Gorodova, N. V. Processes taking place during the heating of silicate fibers (1) 10*j*.
Myasnikov, Yu. G. See Malinin, Yu. S.
Myatlik, V. I. See Eremenko, V. V.
Myers, Robert J. See Hillberry, Benny M.
Myles, Thomas A., and Zimmer, Curtis E. Solid diffusion sources for P doping containing Si and Zr pyrophosphates, P (5) 128*e*.

Naboka, M. N. See Palatnik, L. S.
Nadachowski, Franciszek Lime refractories (5) 117*g*.
Nadachowski, Franciszek, and Rozanowski, Boleslaw Protection of refractory brickwork against corrosion, P (9) 214*c*.
Nadiktova, N. M., Tolstopyatov, R. V., and Babich, V. F. Strength and elastic properties of structural ceramic materials (9) 207*c*.
Nadiv, S. See Lin, I. J.
Nadkarni, G. S. Thin-film magnetoresistors, P (1) 29*j*. See Simmons, J. G.
Nador, N. See Podor, B.
Naefe, Herbert See Kienow, Sigismund
Nafziger, Ralph H. Liquidus phase relations in portions of the system CaF_2-CaO-MgO-Al_2O_3 in an inert atm (5) 141*j*.
Nagahara, Shigehiro See Suzuki, Yoshiro
Nagai, Bin See Fujimura, Sohei
Nagai, Haruo See Zembutsu, Sakae
Nagai, Masayuki, and Yanagida, Hiroaki Preparation of semiconducting $BaTiO_3$ film with a positive temp. coeff. of resistivity (7) 172*a*.
Nagano, Masamitsu See Kato, Akio ; Takeuchi, Harunori
Nagano, Masamitsu, and Kato, Akio Redox equilibria of transition metals and basicity in molten phosphates (3) 91*h*.
Nagasaka, Hideo See Takeuchi, Manabu
Nagasawa, Keinosuke, and Tsuzuki, Yoshiro Expansion-collapse characteristics of interstratified chlorite-montmorillonite (9) 231*i*.
Nagata, Susumu See Okuo, Takayasu
Nagatake, Takeshi Porcelain manufacture in Arita, Japan (5) 97*e*.
Nagayasu, Motokiyo See Tokushige, Toshio
Nagel, Suzanne R., Pearson, A. David, and Tynes, A. R. Compound-glass wave guides fabricated by a metal evaporation technique (3) 55*j*.
Nagiev, V. A. See Glazov, V. M.
Naginskii, M. Z. See Bulakh, V. L.
Nagornova, E. A. See Karayakin, V. A.
Nagornyi, A. P., Kostyuk, V. A., Nosochenko, O. V., and Savrov, V. N. Increasing the durability of ladle linings by impregnating the refractories with C-containing materials (9) 210*e*.
Nagy, A. See Hoffmann, G.
Nagy, Geza Producing tar-dolomite brick for LD converters (7) 165*i*.
Nagy, Lajos See Bakos, Jozsef
Nagy, Mihaly Experimentation with grinding aids at the Ta-

tabanya cement plant, the Danube cement plant, and the Labatlan cement plant (5) 99*d*.

Naidenov, A. P. Foaming of silicate melts (1) 17*g*. See Pavlikhina, E. F.

Naidich, Yu. V., Zhuraviev, V. S., and Chuvashov, Yu. N. Nature of the adhesion of Ga solders to oxide materials (3) 74*f*.

Naigas, P. E. See Komskaya, M. S.

Nair, N. R. See Alam, M. Izhar

Naito, Kiyoshi, Kokumai, Hiroyuki, and Kusuoku, Masashi Construction and operation of super-high-temp. tunnel kiln with gas firing (7) 177*i*.

Naito, Kiyoshi, and Shukuya, Akio ATON burner for oil combustion (7) 177*g*.

Naka, Shigeharu See Suwa, Yoshiko

Naka, Shigeharu, Kameyama, Tetsuya, Inagaki, Akio, and Inagaki, Michio Formation of coesite from a GeO_2-SiO_2 glass (3) 57*g*.

Nakada, M. Process operations and environmental protection at the Yokoze cement works (9) 196*a*.

Nakada, Y., and Schock, T. L. Surface texture formation in Al_2O_3 substrates (1) 27*a*.

Nakagawa, Isamu See Wada, Masamichi

Nakagawa, Kenji See Osagawa, Masaaki

Nakagawa, Kenji, and Itaya, Ko High-strength glass made by ion exchange, P (9) 205*h*.

Nakagawa, Kenji, and Kobayashi, Kunimitsu Apparatus for heat-bonding optical fibers, P (9) 204*c*.

Nakagawa, Sigeyosi See Takao, Hiroshi

Nakahara, Yasuo, Inoue, Yasuo, Horisaki, Masaru, and Ogawa, Tomoyasu Converter refractories at Kimitsu Works (7) 164*j*.

Nakahara, Yasuo, and Kifune, Isao Construction of soaking pit, using nonshaped refractories (3) 64*j*.

Nakahara, Yoshiko See Miyata, Kenichi

Nakahara, Yoshiko, Tazawa, Toshio, and Miyata, Kenichi Preparation of inorganic powders by interfacial reaction method: II, Properties of Ca carbonate prepared by interfacial reaction method (9) 237*g*.

Nakajima, Aisui See Fujie, Hideo

Nakajima, Jun, Iwai, Hiroshi, Momiyama, Iwao, and Fukushima, Tatsuo Inorganic coating, P (5) 104*b*.

Nakajima, Tadashi, Kamata, Kiichiro, and Nakamura, Tetsuro Electrical and magnetic properties of the solid solution system $xLaFeO_3$-(1-x)$SrMoO_3$ (7) 181*d*.

Nakajima, Tsuyoshi, Nakanishi, Koichiro, and Watanabe, Nobuatsu Emulsion in molten salts: II, Dispersion of metallic Li in various molten salts (3) 87*h*.

Nakamichi, T. See Ikeda, K.

Nakamura, H. See Arai, Eisuke

Nakamura, Harutoki, and Yagi, Jun Auto exhaust control catalyst on silica cloth support, P (5) 111*d*.

Nakamura, Kazuo See Okubo, Tsutomu

Nakamura, Kazuo, Hirano, Shinichi, and Somiya, Shigeyuki System ZrO_2-Y_2O_3 under hydrothermal conditions at 1000 kg/cm^2 (5) 146*e*.

Nakamura, Kazuo, Okubo, Tsutomu, and Yonemochi, Osamu Refractory materials of zirconate: III, Effects of Ga_2O_3 addition on sintering of $SrZrO_3$ and $CaZrO_3$ (7) 186*d*.

Nakamura, Masahiko, and Okuda, Susumu Densification in hot-pressing of oriented filaments under low pressure (3) 85*h*.

Nakamura, Masaya See Seki, Yachio

Nakamura, Ryuji, Motoki, Hideo, Jibu, Yukio, and Yamauchi, Mitsuru Castable refractories using new type of lightweight refractory aggregate "foamed SiO_2" (3) 64*b*.

Nakamura, Senichi, and Hayashi, Hiroshi Compounds in the system Li_2O-B_2O_3-H_2O (1) 36*c*.

Nakamura, Shigeharu Crystallized glass article having a surface pattern, P (9) 204*b*.

Nakamura, Shinichi See Hirano, Masahiro

Nakamura, Takashi, Suginohara, Yukio, and Yanagase, Tsutomu Ir absorption spectra of silicate glasses containing TiO_2 (9) 201*f*.

Nakamura, Terutaro See Kojima, Seiji

Nakamura, Tetsuro See Nakajima, Tadashi

Nakamura, Tomikazu See Shirakashi, Shigeru

Nakamura, Yoshio See Ninomiya, Yuhachi

Nakamura, Yoshio, Numata, Michiko, Hoshino, Hideoki, and Shimoji, Mitsuo Electrical conductivity of Ge-Te glasses under hydrostatic pressure (1) 7*d*.

Nakanishi, Koichiro See Nakajima, Tsuyoshi

Nakano, Jun'ichi, and Yamada, Tomoaki Phase equilibrium relations in the pseudobinary system $LiPO_3$-NdP_3O_9 (5) 143*e*.

Nakano, Toshio See Teraoka, Kohta

Nakano, Yoshio Change in properties by use of gunning lightweight castable refractories (3) 64*d*.

Nakao, Kenji Landau level structure and magnetic breakthrough in graphite (7) 183*a*.

Nakashima, Chiyota See Sugita, Kiyoshi

Nakashima, Hiroshi, and Eguchi, Kiyohisa Surface crystallization phenomena of Na borosilicate glass: II (3) 59*d*.

Nakashima, Hiroshi, Kiriyama, Ryoiti, and Eguchi, Kiyohisa Surface crystallization of $70SiO_2$.$15B_2O_3$.$15Na_2O$ glass (1) 12*c*.

Nakata, Kensuke See Tomozawa, Akihiro

Nakata, Ryohei, Kohno, Katsuyasu, Sumita, Minoru, and Higuchi, Eiichi New ESR center in X-irradiated CaF_2 crystals (9) 235*b*.

Nakatani, Satoshi, and Ito, Yoichi Device for detecting strain and foreign matter in glass container by a nonstorage-type pickup tube, P (9) 204*c*.

Nakazawa, H. See Osaka, T.

Namba, Kazuo See Gondo, Hisashi

Nameishi, Naoyuki, and Yoshino, Hajime Highly siliceous materials and their fundamental properties (3) 65*e*.

Namikawa, Hiroshi Characterization of the diffusion process in oxide glasses based on the correlation between electric conduction and dielectric relaxation (3) 55*h*; Measurements of dielectric relaxation in oxide glasses by the absorption current method (5) 108*c*.

Namilov, S. P. See Todes, O. M.

Nanamatsu, Satoshi See Kimura, Masakazu

Nanba, Yasutoshi See Kimura, Morihiro ; Tani, Tetsuro

Nancollas, G. H., Reddy, M. M., and Tsai, F. $CaSO_4$ dihydrate crystal growth in aqueous solution at elevated temps. (1) 35*e*.

Naoumidis, A. See Hilpert, K.

Napier, J. G. See Reeve, K. D.

Narasimhan, K. S., and Sastri, S. R. S. How to estimate size distribution of crushed products (1) 32*c*.

Narayan, J. Prismatic dislocation loops on impurity precipitates in MgO single crystals (7) 185*h*.

Naredi, R. Evolution of the specific loading of rotary kilns (5) 99*a*.

Narkevicius, V. See Baltramiejunas, R.

Narlikar, A. V., Yadav, V. S., and Reddi, B. V. High field superconducting magnet for scientific and industrial applications (3) 80*e*.

Narsimhan, M. D. See Singh, V. K.

Naruse, Akira See Abe, Yoshihiro

Nasledov, D. N. See Filipchenko, A. S. ; Isaev-Ivanov, V. V.

Nassau, Kurt, and Prescott, B. E. Reinterpretation of smoky quartz (5) 144*j*.

Nassau, Kurt, and Shiever, John W. Plasma torch preparation of high purity, low OH content fused SiO_2 (3) 82*h*; Three anisotropies in vitreous SiO_2 (7) 160*g*.

Nassau, Kurt, Shiever, John W., and Krause, John T. Preparation and properties of fused SiO_2 containing alumina (1) 44*h*.

Nassibian, A. G., and Sproul, M. E. Influence of gold on (110) substrates and the temp. dependence of MOS systems (3) 73*i*.

Natarajan, K., and Heasell, E. L. Defect centers in Si produced by room temp. electron irradiation: I, Optical and photoconductivity studies. II, Thermally stimulated conductivity studies. III, Hall coeff. studies (5) 137*b*.

Natarajan, M. See Rao, C. N. R.

Natarajan, M., and Secco, E. A. Electrical conductivity and thermal analysis studies on ferric oxide and chromic oxide gels (9) 231*d*.

Nath, P., Suri, K., and Chopra, K. L. Structural, electrical, and optical properties of thermally evaporated amorphous Ge_xTe_{1-x} films (9) 240*a*.

Nath, Pran Role of process curve in sampling inspection (1) 33*c*. See Chopra, K. L.

Natsenko, A. I. See Pivinskii, Yu. E.

Natsievskii, Yu. D., and Novikova, E. V. New Soviet standard for scoriaceous pumice (9) 223*h*.

Naumenko, T. A. See Minakov, V. A.

Naumova, I. I. See Kaminskii, A. A.

Naumova, I. S., Pobedimskaya, E. A., and Belov, N. V. Crystal structure of carpholoite $MnAl_2Si_2O_6(OH)_4$ (9) 228*a*.

Naumova, M. S. See Soboleva, T. R.

Nava, F. See Canali, C.

Navarrete-Guijosa, A. See Bradt, R. C.

Navinsek, B. See Krasevec, V.

Navrotsky, A. Thermodynamics of formation of some compounds with the pseudobrookite structure and of the Fe-Ti_2O_5-Ti_3O_5 solid solution series (3) 93*f*; Thermochemistry of Cr compounds, especially oxides at high temp. (5) 146*j*; Thermodynamic relations among olivine, spinel, and phenacite structures in silicates and germanates: IV, System ZnO-MgO-GeO_2 (7) 188*a*. See Sharples, John P.

Nawy, Edward G. See Sun, Pore-Feng

Nazarchuk, T. N. See Kopylova, V. P. ; Kotlyar, E. E. ; Kugai, L. N.

Nazarenko, K. V. See Frantsevich, I. N.

Nazarov, I. A. See Yamshchikov, V. S.

Nechaev, E. A. See Semkina, N. V.

Nechaeva, N. A. See Voloshchuk, A. M.

Nechepaeva, Zh. A. See Liberman, G. V.

Nedeljkovic, Arsenije I. Composition and method for electrostatic deposition of dry porcelain enamel frit, P (5) 103*i*.

Nedeljkovic, Arsenije I., and Cook, Ralph L. CeO_2 in porcelain enamels (5) 103*b*.

Nedel'ko, V. I. See Chechernikov, V. I.

Nedermeijer, J. See Verdonk, A. H.

Nedev, N. K. See Barybin, A. A.

Nedopekin, V. M. See Volchenkova, Z. S.

Nedosvitil, V. P. See Shapovalov, V. S.

Neef, N. See Roehrig, H. D.

Neely, James E., Jr. Tempering glass sheets by heat of sublimation, P (5) 114*f*.

Negreanu, Tiberiu See Cerchez, Mihai

Negro, A. See Amato, I.

Neiman, A. Ya. See Zhukovskii, V. M.

Neiman, M. I. See Blokhina, G. P.

Nekrasov, K. D. New developments in the theory and practice of heat-resistant concretes (3) 52*j*.

Nekrasov, K. D., Maslennikova, M. G., and Kraiukhin, V. I. Lightweight refractory concretes—methods of applying and compacting (3) 52*e*.

Nekrasov, Z. I., Merkulov, V. V., Maimur, B. N., and Ul'yanov, A. G. Laboratory apparatus for the investigation of the hot-pressing process (9) 223*b*.

Nelley, John W. Problems with electric melting (5) 109*g*.

Nelson, H. A. Rapid dry-out and heat up method for various refractory linings (3) 67*j*. See Burger, K. R.

Nelson James A. See Judd, Mark S.

Nelson, Karl E. See Riedl, Kenneth M.

Nelson, William T. Pb/chloride/alumina isomerization catalyst for gasoline, P (5) 134*i*.

Nemchenock, Z. O. See Arkhipov, I. I.

Nemec, Lubomir Refining of glassmelts (1) 11*b*.

Nemertsev, V. S. See Krupin, A. A.

Nemeth, Joseph Semiconductor with Mn oxide matrix, P (7) 173*g*.

Nemets, I. I. See Stanilov, B. E.

Nemets, I. I., Kukolev, G. V., Nestertsov, A. I., and D'Yakov, S. I. Heat-resistant grog components for an apparatus for the post-tapping vacuum treatment of molten steel (1) 18*a*.

Nemets, I. I., Nestertsov, A. I., Zagoskin, V. T., and Vysotskii, D. A. Thermal conductivity of periclase and periclase-spinel refractories (3) 68*g*.

Nemilov, S. V. See Kul'bitskaya, M. N. ; Vrtanesyan, G. S.

Nemilov, S. V., and Kasymova, S. S. Elastic properties, energy of chemical bonds, and nature of electrical conductivity of K_2O-SrO-SiO_2 glasses (3) 56*h*; Viscosity of glasses of the system K_2O-SrO-SiO_2 in the region of softening temps. (9) 203*e*.

Nemtsova, G. A. See Karataev, V. V.

Nemykina, T. I. See Perminova, Yu. N.

Nepsha, A. V. Chemical interaction of tar-dolomite refractories in steel smelters (5) 116*d*.

Neschetnyi, V. A. See Kislyi, P. S.

Neshpor, V. S. See Samsonov, G. V.

Nessler, C. G. See Ammann, C. L.

Nesterchuk, N. I., Makarova, T. A., and Khadzhi, I. P. Formation of amphibole with composition $Na_2Co_6Si_8O_{22}(OH)_2$ (9) 232*d*.

Nesterenko, I. P. See Chernyak, L. P. ; Shakhmeister, A. B.

Nestertsov, A. I. See Nemets, I. I.

Nestor, Mircea Izovit window glass, a new product of Romania's industry (5) 107*c*; Methods of reducing fuel consumption of glassmelting ovens (9) 202*b*.

Nesvadba, P. See McMillan, P. W.

Netting, David I., and Hertzenberg, Elliot P. Preparing modified hollow, largely spherical particles by spray drying, P (9) 222*b*.

Neubauer, Iren, and Romwalter, Alfred Interaction of fused cast Al oxide shapes (rails in pusher furnaces) with iron scale up to 1400°C (3) 65*j*.

Neugebauer, Constantine A. See Babcock, Guy L. ; Burgess, James F.

Neuhaus, A. See Cemic, L.

Neuimin, A. D. See Lipilin, A. S.

Neumann, Barbara S., and Sansom, Keith G. Hydrous Mg silicates, P (9) 226*i*.

Neumann, H., Staudte, M., Butter, E., and Stary, J. Electron and hole mobilities in $Ga_{1-x}In_xAs$ (1) 38*j*.

Neumann, H. G. See Koos, V.

Neurgaonkar, R. R. See Brun, M. K.

Neurgonkar, R. R., and Rustum, Roy Structural and thermal properties of the phase $V_{1-x}Cr_{2x/3}M_{x/3}O_2$, M = W^{6+} or Mo^{6+} (9) 240*b*.

Neuroth, Norbert Transparent glass-ceramic laserable articles containing neodymium, P (5) 114*g*.

Neviditsyn, L. F. See Metla, I. I.

Neville, Adam (Editor) Fiber Reinforced Cement and Concrete, B (7) 190*f*.

Nevriva, M. See Holba, P.

Newman, Irvin, and Kelly, Michael G. Glass panel circuit breaker, P (7) 161*j*.

Newman, Jerry F. See Reamey, Herbert K.

Newman, John W., and Hoertz, Charles D., Jr. Graphite articles, P (9) 213*d*.

Newnham, Robert E. Structure-Property Relations, B (9) 244*a*. See Barach, G. R.

Newns, George R., and Beales, Keith, J. Na borosilicate glasses for dielectric optical waveguides P (9) 206*e*.

Newton, R. C. See Charlu, T. V.

Nezhentsev, V. V. See Ganyuchenko, V. M.

Nguyen Quy Dao, and Knidin, M. Ir absorption spectroscopy and Raman spectra of condensed ions: I, $K_5(UO_2)_2F_9$ (5) 140*b*.

Nicholson, Anthony See Ball, Nigel

Nicholson, Patrick S. See Burton, D. ; Byckalo, William ; Din, Salah Ud ; Dow, Jeffrey D.

Nickel, Hubertus See Gyarmati, Erno

Nickelsen, Hubert O., Kopanda, Joseph E., and Piasecki, Felix J. Sintering $CaAl_2O_4$ raw mixes, P (7) 153*c*.

Nicol, Alastair W. (Editor) Physicochemical Methods of Mineral Analysis, B (7) 192*i*.

Nicolet, M. A. See Kraeutle, H.

Nicoletti, N. J. See Lehmann, Hans

Niel, E. M. N. G. See deHaas, G. D.

Nielsen, Haagen B., Bonner, Edwin J., and Lado, Ernest A. Apparatus for reclaiming limestone mud, P (9) 226*f*.

Nielsen, J. W. See Blank, Stuart L.

Niemeyer, E. A. Conversion of the Laegerdorf cement works from the wet to the semiwet process—design and construction of the plant extension (3) 50*e*.

Nier, Thomas J. See Hummel, Merritt J.

Niesz, Dale E. See Bansal, Girraj K.

Niesz, Dale E., and Tennery, Victor J. Ceramics for Prosthet-

ic Applications—Orthopedic, Dental, and Cardiovascular, B (1) 48*b*.

Nietz, S. R. Reaction of Cr_2O_3 in system Al_2O_3-CaO-Na_2O in oxidizing atm up to 1600°C (5) 144*d*.

Nietzel, Oscar A. See Reynolds, Thomas G.

Niimi, Itaru, Kaneko, Yasuhisa, Noda, Fumiyoshi, and Tsuzuki, Yoshihiro Hollow balls of SiC and product formed thereby, P (5) 122*a*.

Niizeki, Kinya, Watanabe, Tohru, Yamamoto, Shoji, and Takeuchi, Akihiro Alumina feeder for electrolytic cells, P (1) 27*i*.

Nijhawan, Krishan K., and Taylor, Derek Bone china, P (9) 242*b*.

Nijman, Willem See vanOirschot, Theodorus G. J.

Nikanorova, Z. P. See Popov, M. I.

Nikiforov, A. Ya., Ostrovskaya, P. S., Vydrina, Zh. A., and Khlynov, S. A. Firing of Belkinsk clays in rotary kilns (9) 209*c*.

Nikiforov, A. Ya., Vydrina, Zh. A., Visloguzva, E. A., and Abdulina, M. A. Periclase-spinellide crown products in refractory production of the Nizhnetagil Metallurgical Complex (9) 210*f*.

Nikiforov, L. G. See Gorislavskii, V. I.

Nikiforov, Yu. N. See Ivanov, L. I.

Nikiforov, Yu. V. Effect of MgO on properties of clinker and cement (5) 99*i*. See Danyushevskii, S. I.

Nikishin, B. I., Kolosov, A. Kh., Strebkov, Yu. N., and Maidin, V. I. Use of tagged atoms in cement plants (1) 3*g*.

Nikitenko, V. I. See Bondarenko, I. E. ; Vlasko-Vlasov, V. K.

Nikitin, S. A. See Belov, K. P. ; Vasil'kovskii, V. A.

Nikitina, M. V. See Dement'ev, L. N.

Nikitina, N. G. See Petrova, V. Z.

Nikitinskaya, T. I. See Zakharov, G. M.

Nikolaenko, A. See Guoga, V.

Nikolaev, E. V. See Verdiyan, M. A.

Nikolaev, I. N., Potapov, V. P., and Marin, V. P. Moessbauer effect in a Co_2MnSn alloy under pressure (9) 235*g*.

Nikolaeva, E. A. See Lozovskii, V. N.

Nikolaeva, L. G. See Aivazova, L. S.

Nikolaeva, L. Ya. See Tsekhovol'skaya, D. I.

Nikolaeva, V. D. See Patrin, P. A.

Nikolic, P. M. New semiconducting materials (3) 74*h*.

Nikolic, P. M., Vujatovic, S. S., and Mihajlovic, P. Speciman preparation and structural properties of single crystal GeS (7) 186*j*.

Nikolic, Z. New way of presenting sintering diagrams (9) 235*g*.

Nikolov, Ts. See Ikonopisov, S.

Nikulina, L. N. See Korobkina, V. V. ; Levin, D. I.

Ning, T. H. High-field capture of electrons by Coulomb-attractive centers in SiO_2 (9) 232*h*.

Ning, T. H., and Yu, H. N. Optically induced injection of hot electrons into SiO_2 (9) 236*i*.

Ninomiya, Hideaki See Shiraki, Yoichi

Ninomiya, Hisato, and Matsuo, Akira Refractory practices in ladle refining furnace (5) 119*j*.

Ninomiya, Yuhachi, Nakamura, Yoshio, and Shimoji, Mitsuo Electrical conductivity and thermoelectric power of some molten $A^IB^{III}C_2^{VI}$ and $A^IB^VC_2^{VI}$ compounds (1) 38*g*.

Nisel'son, L. A., Borisova, V. P., and Tret'yakova, K. V. Phase equilibria in the system $BiCl_3$-$GaCl_3$ (1) 42*j*; System Bi-Cl_3-$TeCl_4$ (1) 46*e*.

Nisevich, Stephen D. See Carr, Ronald R.

Nishida, Keijiro See Kakei, Mitsuo

Nishida, Masamitsu See Ouchi, Hiromu

Nishida, Masaru See Kawamoto, Yoji

Nishida, Shinji, Kanamitsu, Shozo, and Nojima, Yoshiharu Outline of dry-type defluorinator (7) 177*d*.

Nishida, Shinji, Kobayashi, Jiro, and Nonaka, Shingo Mfg. plant of sling mass and slinger process (9) 210*c*.

Nishida, Toshihiko See Nishikawa, Tomozo

Nishikawa, Tomozo, Nishida, Toshihiko, Hirai, Nobuki, and Okamoto, Yasunori Shape change of crystal grain and grain boundary of polycrystalline Ni-Zn ferrite under compressive deformation (9) 238*h*.

Nishikawa, Tomozo, Nishida, Toshihiko, and Inoue, Kiyoshi High-temp. deformation of polycrystalline β-alumina (1) 40*b*.

Nishikawa, Tomozo, Nishida, Toshihiko, Okamoto, Yasunori, and Inoue, Kiyoshi Polycrystalline β-alumina with preferred orientation of the grains (5) 144*a*.

Nishikawa, Tomozo, Nishida, Toshihiko, and Sugimura, Shuichiro Preparation of polycrystalline cubic ferrite with grain orientation (1) 44*g*.

Nishikawa, Tomozo, Nishida, Toshihiko, and Uno, Tetsuo Grain orientation in α-alumina polycrystal produced by thermal decomposition of β-alumina single crystal (3) 88*a*.

Nishikawa, Yasuo See Shinnobu, Michito

Nishimura, Tatsuo, and Sato, Masataka Experiments on explosive cracks in castable refractories (3) 65*e*.

Nishimura, Tetsuaki Development of automatic joint processing machines for abrasive belts (5) 97*b*.

Nishinaga, T., and Lieth, R. M. A. Thermodynamical calculations on the chemical transport of GaS in a closed tube system (1) 47*d*.

Nishio, Takumi See Ohnishi, Masayoshi

Nishitani, Teruyuki Method and apparatus for drying refractory lining, P (7) 167*e*.

Nishiwaki, Yuhji See Matsuo, Shigetomo,

Nishiyama, Tsutomu, Shimoda, Susumu, Shimosaka, Koya, and Kanaoka, Shigeto Li-bearing tosudite (7) 183*b*.

Nishizawa, H. See Yamamoto, T.

Nishizawa, Junichi, Suto, Ken, and Okuno, Yasuo Single crystals of GaP, P (7) 173*i*.

Nisman, M. S., Gekhtman, Ts. M., Okhrimenko, L. I., and Shkumat, N. V. Preparation of a granulated charge of container glass (3) 58*f*.

Nistor, N. See Ionescu, R. ; Jaklovszky, J.

Nitsche, Rudolf See Diehl, Roland

Nitschke, Norman C. See McMaster, Harold A.

Nitta, Tsuneharu See Kasahara, Yukio

Nitzki, V. See Matzke, Hj.

Niunka, V. See Baltramiejunas, R.

Nivas, Yogesh See DeHollander, William R.

Niwa, Kichizo See Tamura, Seiichi ; Yokokawa, Toshio

Niwa, Shohei Characteristics of siliceous refractories (3) 64*e*.

Niwa, Shohei, Matsumura, Isao, Watanabe, Takashi, and Sakagami, Takeo Unburned ladle bricks manufactured for trial—1st report (5) 121*e*.

Niwa, Shyohei See Uemura, Takuro

Niyogi, S. K. See Mookerjee, S. K.

Nizhankovskii, V. I. See Alekseevskii, N. E.

Nobbs, Arthur J. See Jack, Harry R. S.

Noble, David S. See Silverstone, Calvin E.

Nobuhara, Keiichi See Kimura, Morihiro

Noda, Fumiyoshi See Kaneko, Yasuhisa ; Kondo, Katsumi ; Niimi, Itaru

Noda, Fumiyoshi, and Takeuchi, Yukihisa High-temp. heat-insulating structure, P (9) 213*f*.

Noguchi, Choji Views on studies on increasing the efficiency of refractories in use and development of new high-efficiency refractories (5) 121*i*.

Noguchi, Shoichiro See Takahashi, Takehiko

Noguchi, Tetsuo See Mizuno, Masao ; Okubo, Tsutomu

Nojima, Yoshiharu See Nishida, Shinji

Nolen, R. L., Jr., and Solomon, D. E. Surface properties of some commercially available spherical glass laser fusion pellets (7) 160*d*.

Nomura, Masayoshi See Saida, Hiroji

Nonaka, Shingo See Nishida, Shinji

Noodleman, S. Design trends in permanent magnets for dc motors (1) 25*e*.

Norby, Thomas E. See Fischer, David J.

Norcross E. See Pickles, A. E.

Noreika, Alexander J., and Francombe, Maurice H. Sputtering method for growth of thin uniform layers of epitaxial semiconductive materials doped with impurities, P (3) 77*i*.

Noritake, Muneo, and Takeuchi, Masaharu Kiln for tile, P (3) 82*b*; Firing method and kiln for tile, P (7) 170*f*.

Normandin, R. See Goruk, W. S.

Noro, Y. See Hisatake, K.

Norris, C. B., and EerNisse, E. P. Ionization dilatation effect in fused SiO_2 from 2 to 18 keV electron irradiation (9) 233*i*.

Northrop, D. C. See Davidson, S. M. ; Hussain, L. A.

Northup, John D. Bottle testing apparatus, P (1) 13*h*.

Nosaka, Yoshinori See Fukushima, Keitaro

Noskova, O. S. See Khabarova, L. I.

Nosochenko, O. V. See Nagornyi, A. P.

Notis, M. R., Spriggs, R. M., and Hahn, W. C. Jr. Elastic, magnetic, and electrical properties of pure and Li-doped Ni oxide (7) 181*a*.

Nourse, Billie E. See Ray, Jess B., Jr.

Nouruzi-Khorassani, A. See Hogarth, C. A.

Noval, Barry A. See Eastwood, H. Keith

Novice, Michael A. Hot-end coating of glass containers, P (7) 162*c*; Apparatus for coating an article, P (9) 204*c*.

Novikov, B. V. See Roeppischer, H.

Novikov, G. V., Al'ber, S. I., Rubtsov, V. A., and Sokolov, Yu. A. Direct proof of the ordering of vacancies in high-temp. hexagonal pyrrhotite (1) 36*j*.

Novikov, I. G. See Zverev, L. N.

Novikov, N. N. See Khimenko, M. V.

Novikov, V. K. See Strakhov, V. I.

Novikov, V. N., Egorova, T. N., and Tallerchik, B. A. Semiconductor ceramic materials, P (7) 173*g*.

Novikova, E. V. See Natsievskii, Yu. D.

Novikova, O. V. See Prokhorova, I. Ya.

Novokhatskii, D. F. See Vyrodov, I. P.

Novoselov, Yu. M. See Brovkin, A. A.

Novoselova, A. V. See Klimakov, A. M. ; Shaimuradov, I. B. Zlomanov, V. P.

Novoselova, S. K. See Yashenkova, L. N.

Nowakowski, T. See Jezowska-Trzebiatowska, B.

Nowotny, H. See Rogl, P.

Nozawa, Kazuo See Kobayashi, Tomio

Nozdryakov, N. L. See Kutateladze, K. S.

Nozik, Yu. Z. Isotopic substitution and crystal structure (1) 41*b*.

Nriagu, Jerome O. Thermochemical approximations for clay minerals (3) 93*c*.

Nudel, M. E. See Timashev, V. V.

Nudel'man, B. I. See Poddubnyi, I. M.

Nufer, Robert W. See Hait, Gerald F. ; Kaiser, Harold D.

Numata, Kazunori See Ouchi, Hiromu

Numata, Michiko See Nakamura, Yoshio

Nurishi, Yukio See Miyamoto, Masafumi ; Yoshida, Kazunori

Nurmikko, A. V. Fundamental absorption edge in laser winder CdTe (5) 106*f*.

Nussbaum, Marcel See Gillot, Jacques

Nwoko, V. O., and Shreir, L. L. Oxidation of electrodeposited Ni-1.6 wt% alumina (1) 26*j*.

Nyffenegger, H., Bolleter, W., and Tenchio, G. Measurement of sound propagation time for determining secondary air temp. (3) 80*f*.

Oakland, Philip J. See McCourty, Ian A.

Oana, Yasuhisa See Itoh, Tadatsugu

Obdina, S. P. See Firsov, V. M.

Oberg, Fred N. See Ronzio, Richard A.

Obolonchik, V. A. See Goryachev, Yu. M.

O'Brien, Marvin E. See Blome, James C.

O'Brien, Neal R. SEM study of clay structure (3) 91*c*.

Obrosov, V. P. See Semkina, N. V.

O'Bryan, H. M., Jr. See Plourde, J. K.

O'Bryan, H. M., Jr., and Maldonado, J. R. Comment on "Temp.-dependent ferroelectric domain alignment in PLZT ceramic" (7) 170*b*.

O'Bryan, H. M., Jr., and Thomson, John, Jr. Preparation of $BaTi_5O_{11}$ by solid-state reaction (1) 27*a*.

O'Bryan, Henry M., Jr., Plourde, James K., and Thomson, John, Jr. Devices using low loss dielectric material, P (5) 127*d*.

Obst, Karl-Heinz, Muenchberg, Wolfgang, and Comes, Heinrich Influence of alloying elements on the slagging of basic refractories in arc furnaces (9) 210*f*.

Obukhova, N. V. See Semendyaev, A. F.

Ocheretnyi, V. A. See Larina, R. A.

Ochi, Yoshiyuki See Fujie, Hideo

Ochiai, Tsunemi See Hoshiide, Yuji

Ochiai, Tsunemi, Hiragushi, Keisuke, Fujiwara, Shigeru, and Taniyama, Mitsuya Results of lining investigation of blown out Hirohata No. 1 blast furnace (7) 166*g*.

Ochiai, Y., and Matsuura, E. Metal-semiconductor transition in heavily doped *n*-type Si (1) 42*f*.

Ochkur, P. G. See Lukantsever, A. L.

Ockers, S. T. See Fisher, E. S.

O'Connor, Joseph R., and Small, Leonard J. Growing crystals, P (5) 127*b*.

O'Connor, P. B. See French, William G.

O'Connor, Paul B., MacChesney, John B., Presby, H. M., and Cohen, G. Leonard Preparation and structural characteristics of high-SiO_2, graded-index optical fibers (7) 159*h*.

Oda, N. See Hayakawa, Y.

Oda, Yasuyoshi See Takamiya, Youichi

Odajima, A. See Kumazaki, K.

Odelevskii, V. I. See Ainshtein, R. G.

Odermath, K. H. Refractory ladle lining brick, P (3) 70*h*.

Odier, P. See Rifflet, J. C.

Odier, Ph., Baumard, J. F., Panis, D., and Anthony, A. M. Thermal emission, electrical conductivity, and Hall effect for defect study at T1250°K in Y_2O_3 and TiO_2 (7) 188*d*.

Odin, G. S. See Velde, Bruce

Odler, Ivan See Skalny, Jan

O'Dwyer, J. J. Two-carrier model for high field conduction in SiO_2 (7) 160*a*.

Oeckel, H. Ball mills and a method of producing the lining, P (9) 221*h*.

Oehlschlegel, Georg, and Ohnmacht, Walter Equilibrium relations in the partial system SiO_2-$Ba_2Si_3O_8$-$BaAl_2Si_2O_8$ (7) 156*i*.

Oel, Heribert J. See Varner, James R.

Oel, Heribert J., and Schaeffer, Beata Attack of acids, alkalis, and a detergent solution on glazes: I, Experimental method and analytical determination of the dissolved constituents (5) 122*f*.

Oelke, Waldemar W. See Hamilton, Harold E.

Oeters, Franz See Knueppel, Reinhard

Oganesyan, R. B. Possibility of producing cellular glass from low-melting clays (9) 202*b*.

Ogarev, V. A., and Arslanov, V. V. Thermodynamics of insoluble monolayers (1) 47*d*.

Ogawa, Hiroshi See Kitayama, Teruki

Ogawa, Tomoyasu See Nakahara, Yasuo

Ogden, R. Stacking fault pyramids in {100} epitaxial Si (3) 92*e*.

Ogden, R. L. Applications and economics in the use of new higher temp. ceramic fiber insulating refractories (7) 164*a*.

Ogita, Minoru Ceramic filter circuit, P (7) 172*j*.

Ogorodnikov, V. K. See Konnikov, S. G.

Oguri, Yasuo See Yanagi, Masamitsu

Oh, Ki Dong Synthesis of magnesite by hydrothermal method (7) 187*e*.

O'Hare, P. A. G., and Hoekstra, H. R. Thermochemistry of molybdates: V, Standard enthalpy of formation of $Cs_2Mo_2O_7$ (5) 146*a*.

O'Hare, P. A. G., and Johnson, Gerald K. Li_3N—standard enthalpy of formation by solution calorimetry (5) 141*j*.

Ohba, Atsushi, and Shinohara, Yasuaki Bonding strength of frozen wetted mortar (3) 50*i*.

Ohba, Hiroshi See Wakabayashi, Akira

Ohba, Jun See Okubo, Shizuo

Ohga, Youichi, Kuwabara, Makoto, and Hosokawa, Kunisuke Wet synthesis of Sb-doped $BaTiO_3$ (7) 189*a*.

Ohi, Kikuo See Kojima, Seiji

Ohira, Y. See Okada, Kiyoshi

Ohlhausen, Howard G. Water-repellent treatment for nonporous substrates, P (1) 29*c*.

Ohmura, Katsuro See Suyama, Yoko

Ohnishi, Masayoshi, Nishio, Takumi, and Terashima, Toshio Use of sliding gate nozzle in Japan (9) 212*i*.

Ohnmacht, Walter See Oehlschlegel, Georg

Ohno, Takashi, Matsunaga, Hitoshi, and Kumasaka, Tetsuo Experimental study on composites as construction materials of gypsum obtained by desulfurization of flue gas (7) 151*b*.

Ohno, Tomeji See Utsumi, Kazuaki ; Yonezawa, Masatomo

Ohsaka, Toshiaki Ir spectra of glassY Se containing small amounts of S, Te, As, or Ge (1) 8*j*.

Ohta, K. See Hisatake, K.

Ohta, Masato, and Akiyama, Keiichi Highly siliceous alumi-

nous cements (7) 151*f*.
Ohtsuka, Atsushi, and Haneda, Hazime Formation and color of the spinel solid solution in CoO-ZnO-Al_2O_3-Cr_2O_3-SnO_2 system (7) 169*d*.
Ohtsuka, Atsushi, and Kitamura, Kazuo Formation and color of the spinel solid solution in CoO-ZnO-Cr_2O_3-TiO_2-SnO_2 system (3) 88*a*.
Ohtsuka, Atsushi, and Okada, Masao Formation and color of spinel solid solution in (CoO,MgO)-Al_2O_3-Cr_2O_3-Fe_2O_3 systems (1) 39*e*.
Ohtsuka, Yoshiji Changes in pottery design of Mashiko: I-II (3) 70*f*.
Ohwada, Kuniki, Sakuma, Kazuhito, Kiuchi, Kazuo, and Tomimuro, Hisashi SiO_2 thin-film capacitor prepared by rf sputtering (9) 218*d*.
Oishi, Yasumichi See Ando, Ken
Oishi, Yasumichi, and Ando, Ken Self-diffusion of O in polycrystalline $MgAl_2O_4$ (7) 186*h*.
Oka, Izumi, Ozasa, Masahiro, and Tani, Tetsuro Structure of Mitsubishi metacon-type medium-size slide valve and its performance (5) 120*g*.
Oka, Izumi, and Umeki, Masatoshi Results obtained on slide valve used at Amagasaki Steel Plant: II (5) 120*c*.
Okada, Kiyoshi, Morikawa, Hideki, Iwai, Shinichi, and Ohira, Y. Structure model of allophane (9) 240*b*.
Okada, Masao See Ohtsuka, Atsushi
Okada, Masaru High-alumina runner brick for bottom pouring (5) 117*i*.
Okada, Shojiro Strength of abrasive grains (9) 193*d*.
Okai, Bin, and Yoshimoto, Jiichiro Pressure dependence of the structural phase transition temp. in $SrTiO_3$ and $KMnF_3$ (3) 91*b*.
Okamoto, E., Ikeo, H., and Muto, Katsutoshi Holographic storage in U-doped $LiNbO_3$ (3) 88*i*.
Okamoto, Kazuma See Tomita, Yoshimori
Okamoto, Noboru See Shinnobu, Michito
Okamoto, Shoichi Applicaton of magnetism to waste-water treatment (9) 221*j*.
Okamoto, Yasunori See Nishikawa, Tomozo
Okamura, Kiyohito See Yajima, Seishi
Okamura, Takeo See Shinnobu, Michito
Okano, Takeo, and Fujii, Noriyuki Imported raw materials for ceramic industries in Japan (9) 225*e*.
Okawa, Kiyoshi See Hiragushi, Keisuke
Okhremchuk, L. N. See Samsonov, G. V.
Okhrimenko, L. I. See Nisman, M. S.
Oki, Kazuo, Takahashi, Tsugukazu, and Kuwabara, Kunji Refractories for the gas stirring of molten steel (5) 119*f*.
Oki, Masami See Kamigaito, Osami
Oki, Masami, Hori, Ryuzo, and Miwa, Naoto Ceramic honeycomb structures, P (5) 124*g*.
Okochi, Kenji See Minai, Kiichi
Okonogi, Itaru See Tomita, Chuji
Okorokov, S. D., Sudakas, L. G., and Kopilevich, V. S. Thickening and setting of cement raw material slurry containing a belite component (1) 3*g*.
Okorokov, S. D., Volkonskii, B. V., Egorov, G. B., and Ermakov, G. F. Correlation of composition, structure and properties of clinker (5) 98*f*.
Okorokov, V. A. See Krasnomovets, A. V.
Okubo, Shizuo, and Ohba, Jun History of 1300-ton mixer and world record set by it for quantity transport of pig iron (5) 117*j*: Operating conditions of runner brick for bottom pouring at Muroran Steel Plant (5) 118*f*.
Okubo, Tsutomu See Nakamura, Kazuo
Okubo, Tsutomu, Yonemochi, Osamu, Nakamura, Kazuo, and Maeda, Minoru Refractory materials of zirconate: II, Synthesis and some properties of $SrZrO_3$, $CaZrO_3$, and $BaZrO_3$ (7) 186*c*.
Okubo, Tsutomu, Yonemochi, Osamu, Nakamura, Kazuo, and Noguchi, Tetsuo Refractory materials of zirconate: I, Determination of liquidus curves in the systems ZrO_2-SrO, $SrZrO_3$-$CaZrO_3$, and $SrZrO_3$-$BaZrO_3$ and a solar furnace (7) 186*a*.
Okuda, Shigeo See Maeta, Hiroshi
Okuda, Susumu See Nakamura, Masahiko
Okuma, Hideo See Ichinose, Noboru ; Kobayashi, Keiji
Okuno, Yasuo See Nishizawa, Junichi
Okuo, Takayasu, and Nagata, Susumu BeO ceramics for magnetohydrodynamic generator insulating walls (3) 72*b*.
Okushima, Susumu See Onishi, Toshiyasu
Okutani, Takeshi, Furuichi, Ryusaburo, and Ishii, Tadao SO_2 recovery by aluminates: III, Preparation of Mg aluminate by solid state reaction of the $MgSO_4$-Al_2O_3 system and the reactivity for SO_2; IV, Preparation of Ca aluminates by solid state reaction of the $CaSO_4$-Al_2O_3 system and reactivity for SO_2 (3) 91*f*.
Okuyama, Teruo Apparatus for scoring a strip of glass sheet, P (1) 13*e*.
Olcott, Eugene L. Rocket nozzle comprising pyrolytic graphite-SiC microcomposite inserts, P (1) 5*f*; Pyrolytic graphite-SiC microcomposites, P (3) 70*e*; Reinforced pyrolytic graphite-SiC microcomposites, P (5) 122*h*.
Oldfield, Lucy F. Laser glass, P (5) 113*f*.
Oleinik, G. S. See German, V. O. ; Shipilova, L. A.
Oleinik, G. S., and Gorb, M. L. Strength of polycrystalline SiC (3) 75*e*.
Oleinik, G. S., and Shipilova, L. A. Effects of sintering conditions on the microstructure and electrical properties of self-bonded SiC (5) 138*i*.
Oleinik, V. I. See Smolyakov, L. I.
Oleinikov, N. N. See Fadeeva, V. I.
Olempska, Z. See Szlenk, K.
Olesch, Martin Synthesis and solid solubility of trioctahedral brittle micas in the system CaO-MgO-Al_2O_3-SiO_2-H_2O (3) 92*e*.
Oleshko, L. V. See Gol'dshtein, L. Ya.
Ol'ginskii, A. G. See Torgashov, V. V.
Olivei, Alfredo Surface imaging by scanning-laser-induced voltage (7) 176*e*.
Olney, Georges L. See Dakin, Gerald F., Jr.
Olsen, Keith H., and Christmann, Marvin H. Producing epitaxial thin-film Fabry-Perot cavity suitable for use as a laser crystal by vacuum evaporation, P (5) 128*b*.
Ol'shanskii, A. I. See Kovchur, S. G.
Ol'shanskii, A. I., and Kovchur, S. G. Drying kinetics of structural ceramics (9) 206*f*.
Olshansky, Robert, and Keck, Donald B. Pulse broadening in graded-index optical fibers (5) 109*a*.
Olson, David L. See Brown, Wendel G.
Olteanu, M. See Zuca, Stefania
Olwert, Ronald J. Precoat for reprographic lamps having oxide reflector coatings, P (3) 62*c*.
Omatsu, Masayuki See Murata, Michihiro
Omejec, L. See Ban, Z.
Omel'chenko, Yu. A. See Vil'k, Yu. N.
Omelianovski, Eric See Lin, Alice L.
Omori, Mamoru See Yajima, Seishi
Omori, Shigemi, Iriya, Teruhiro, and Morioka, Koichi Determination of thermal conductivity of solids by steady heat flow method using linear heater: II (3) 80*c*.
Omura, Itiro, and Kaneko, Tadao Crystal growing apparatus, P (1) 28*f*.
Onarheim, Einar Recycling SiO_2, P (5) 122*f*.
Onishchenko, P. V. See Abbakumov, V. G.
Onishchenko, P. V., Druzhinina, N. A., Antonov, G. I., and Shcherbenko, G. N. Production of crown magnesite-spinel refractories using sintered spinel (3) 67*c*.
Onishchenko, P. V., Savitskii, D. I., Taukchi, V. N., and Druzhinina, N. A. Production of crown magnesite-spinel refractories from molten spinel (3) 67*c*.
Onishi, Toshiyasu Record of life of converter ladle lining kept at Kakogawa steel mill (5) 119*e*.
Onishi, Toshiyasu, Mitsushima, Shozo, Okushima, Susumu, and Hikita, Akio Slinger method for ladle lining (7) 166*i*.
Onishi, Toshiyasu, Yura, Isamu, and Tani, Tetsuro Runner brick for bottom pouring of large steel ingot (5) 120*c*.
Ono, Isao See Shimada, Noburo
Ono, S. See Ikeda, K.
Ono, Setsuko, and Munakata, Motosuke Comparison of absorption current characteristics between an electronic-conducting and an alkali-containing glass (1) 6*c*.
Ono, Yuichi See Kawamura, Masao ; Saida, Hiroji
Onoda, G. Y., Jr. Theoretical strength of dried green bodies with organic binders (7) 170*a*. See Pantano, C. G., Jr.
Onoprienko, L. G. See Khrabrov, V. I.
Ooba, Shigeki, Ueno, Seiichi, and Hasegawa, Yasushi Effect of melting conditions on the uniformity of chemical composition in As_2S_3 glass (5) 105*j*.
Oonk, H. A. J., van Loo, T. J., and Vergouwen, A. A. Empirical Gibbs energy relation for immiscibility in liquid SiO_2-metal oxide systems (9) 200*h*.
Opoczky, Ludmilla Effect of grinding aids (5) 99*d*.
Oppenheim, M. J. Silicate electrolyte cell, P (1) 29*h*.
Oppermann, H., Reichelt, W., Gerlach, U., and Wolf, E. Range of homogeneity of VO_2 and the influence of the composition on the physical properties: I, Preparation of defined VO_2 and the determination of its phase boundaries (5) 144*j*.
Opyrchal, J. See Bieganski, Z.
Orban, Maria See Solymar, Karoly
Ordan'yan, S. S. Reactions of Re and other refractory metals with some metal-like compounds (3) 67*e*.
Ordan'yan, S. S., and Fishchev, V. N. Effect of porosity on Young's modulus of ZrC and NbC (9) 230*e*.
Ordan'yan, S. S., and Unrod, V. I. Reactions in the system ZrC-ZrB_2 (3) 91*e*.
Ordan'yan, S. S., Unrod, V. I., and Avgustinik, A. I. Reactions in the system TiC_x-TiB_2 (5) 144*g*.
Orgaz Orgaz, F. See Fernandez Navarro, Jose Maria
Orgon, Bernard L. Machine for laminating glass, P (7) 162*g*.
Orlin, N. A., and Petrov, K. I. Optical properties of single crystals of $Gd(ReO_4)_3.4H_2O$ (1) 42*i*.
Orlov, A. A. Accelerated repair of technological equipment (1) 30*c*.
Orlov, G. V. See Tsigler, V. D.
Orlov, P. B. See Korobov, O. E. ; Vigdorovich, V. N.
Orlov, Yu. F. See Kerssik, S. D
Orlov, Yu. F., Livshits, E. B., Karpova, L. N., and Kurchevskaya, E. O. Formation principles for thin films of complex composition: VI, Condensates formed during evaporation in vacuo of AsSeI and $AsSeI_{0.1}$ (9) 232*h*.
Orlova, G. M., Blinov, L. N., Belyakova, N. V., and Kozharina, T. P. Kinetics of chemical etching of Pb chalcogenides (9) 218*a*.
Orlova, I. G. See Dergaputskaya, L. A.
Orlova, I. G., Dergaputskaya, L. A., and Kainarskii, I. S. Corundum ceramics with decreased firing shrinkage (5) 116*b*.
Orlova, I. G., Posokhova, E. D., and Karras, G. E. Dry grinding of zircon in the manufacture of dense products (5) 116*g*.
Orlova, I. G., P'yanykh, N. L., Kainarskii, I. S., and Gul'ko, N. V. C reduction of Al_2O_3-SiO_2 refractories (1) 16*j*.
Orlova, L. M. See Chevela, O. B.
Orlova, Valentina P. See Balitskii, Vladimir S.
Orsher, Zh. M. See Danyushevskii, S. I.
Ortelli, G. See Vincenzini, P.
Orton, J. W., Kipperman, A. H. M., and Beun, J. A. Experimental study of the electrical properties of the contact between two similar semiconductor crystals (7) 171*a*.
Orville, Philip M. Stability of scapolite in the system Ab-An-NaCl-$CaCO_3$ at 4 kbars and 750°C (5) 145*c*.
Osagawa, Masaaki, Kobayashi, Kunimitsu, and Nakagawa, Kenji Gastight light-transmitting optical-fiber plate, P (7) 161*d*.
Osaka, Akiyoshi See Matusita, Kazumasa
Osaka, T., and Nakazawa, H. Cementite structure for Fe_3S (9) 227*f*.
Osato, Yoichi See Suzuki, Hiroshige
Osborn, William P. See Pearne, Frank S.
Osburn, C. M. Characterization of thin oxide films for FET applications (7) 170*a*.
Oshida, Otto A., Gilmour, John B., and Siddiqui, Nadeem U. Mineral aggregate (perlite) acoustical board, P (9) 213*f*.
Oshima, Hirotoshi See Yamamura, Hiroshi
Osiko, V. V. See Balkevich, V. L. ; Voron'ko, Yu. K. ; Zharikov, E. V.
Osipova, I. I., and Pogorelova, D. A. Recrystallization of Si_3N_4 during hot-pressing (9) 238*c*.
Osipova, L. Ya. See Simonov, K. V.
Osip'yan, Yu. A., and Shevchenko, S. A. Effect of dislocations on the electrical properties of *p*-type Ge (1) 37*i*.
Osovitskii, E. I. See Gnesin, G. G.
Ospishcheva, V. A. See Pirogov, Yu. A.
Ossa, Mauricio Influence of age and conditions of storage on Chilean cements (7) 151*h*.
Ostachowicz, J. See Wasilewska, M.
Ostachowicz, J., Wasilewska, M., Lankosz, M., and Molodynska, W. Apparatus for the radiometric analysis of the Ca and Fe content of cement raw meal (3) 50*e*.
Ostapenko, V. Z. See Pchelyakov, K. A.
Osterholtz, Carl E. See Howe, Robert A.
Ostermayer, F. W., Jr., and Pinnow, Douglas A. Optimum refractive-index difference for graded-index fibers resulting from concentration-fluctuation scattering (5) 108*h*.
Ostroot, G. Warren, and Chatterji, Jiten Thixotropic cementing compositions, P (9) 197*e*.
Ostrovskaya, P. S. See Nikiforov, A. Ya.
Ostrovskaya, P. S., Talanova, I. R., and Ovchinnikov, N. A. Use of surfactants for strengthening seams in stopper pipes and steel-casting stopper ends (9) 212*j*.
Ostrovskaya, P. S., Vydrina, Zh. A., Papakin, Kh. M., and Androsenko, V. G. Mfg. and service life of low-fired stopper and bottom-gate tubes (1) 18*f*.
Ostrovskii, V. S. See Kilin, V. S.
Ostrowski, Czeslaw [Synthetic] gypsum and its hydrates studied by proton magnetic resonance (7) 153*d*.
Osvay, M., and Tarczy, K. Measurements of γ-dose rates by *n*- and *p*-type semiconductor detectors (1) 42*b*.
Ota, Chisato See Takamiya, Youichi
Otake, Takeshi, Toyama, Shigeki, and Uchida, Kunio Process for producing artificial lightweight aggregate from less bloatable shale applying an extruding pelletizer (3) 63*f*.
Otani, Takeo See Tani, Tetsuro
Otouma, Takashi, Udagawa, Shigekazu, Urabe, Kazuyori, and Yano, Toyohiko X-ray studies on the orientation of chrysotile in the asbestos products (9) 242*e*.
Otsuka, Kanji, Usami, Tamotsu, Yamada, Koichiro, and Sekihata, Masao Evaluation of the degree of mixing by XMA in alumina ceramics (5) 139*h*.
Otsuka, Nozomu See Shiraki, Yoichi
Ott, Carl W. Welding procedures for porcelain enameled products (3) 54*i*.
Ott, W. Richard See Hill, Richard F.
Ottaviani, G. See Canali, C.
Otto, A. See Hoebbel, D.
Otto, H. H. New high temp. compound: $PbGeO_3$ (7) 184*h*.
Ouchi, Hiromu, Nishida, Masamitsu, and Numata, Kazunori Ferroelectric ceramics, P (9) 219*i*.
Ouchiyama, Norio, and Tanaka, Tatsuo Probability of coalescence in granulation kinetics (1) 30*i*.
Oudet, X. Investigation of crystal structure and saturation magnetic moment of 0°K of spinel ferrites RFe_2O_4 (R = metal) (5) 140*h*.
Ovcharenko, F. D. See Mank, V. V.
Ovchinnikov, N. A. See Ostrovskaya, P. S.
Ovchinnikov, Yu. N. Conductivity in second-order superconductors near their transition temp. (1) 35*g*.
Ovrutskii, A. M., and Chuprina, L. M. Stability of planar forms of crystal growth (9) 239*f*.
Ovshinsky, Stanford R. See Fleming, Gordon R.
Ovsyuk, V. N. See Alikin, V. I.
Owa, Masaru See Kawasaki, Shigetake
Owen, M. J., and Found, M. S. Fatigue behavior of a glass-fabric-reinforced polyester resin under off-axis loading (1) 8*f*.
Owens, Robert S. See Powers, Robert W.
Ownby, P. D., and Lahmann, C. P. Influence of oxygen partial pressure on physical properties of Cr Al_2O_3 cermets (9) 210*h*.
Oxley, D. P., and Thurstans, R. E. Criticism of some hot-electron attenuation length measurements (3) 79*g*.
Oyama, Takeji See Kobayashi, Hiroo
Oyama, Yoichi See Kamigaito, Osami ; Kamiya, Nobuo
Oyamada, Ryozo See Hagiwara, Hisao
Ozaki, Masahiko See Matsumura, Yasuo
Ozasa, Masahiro See Oka, Izumi
Ozawa, Kenji See Minai, Kiichi
Ozawa, T. Nonisothermal kinetics of diffusion and their application to thermal analysis (3) 80*h*.
Ozhogin, V. I. See Maksimenkov, P. P.

Ozhogin, V. I., Cherepanov, V. M., and Yakimov, S. S. Effect of anisotropy on field-induced antiferromagnetism in $YFeO_3$ (9) 230*f*.
Ozkan, H., Cartz, L., and Jamieson, J. C. Elastic constants of nonmetamict Zr silicate (7) 181*h*.

Pabst, R. See Elssner, G.
Pacaud, F. See Bonniaud, R.
Packard, Douglas R. See Grossman, Leonard N.
Packter, A. Precipitation of Ca sulfate dihydrate from aqueous solution—kinetics of crystal growth and final crystal sizes (3) 52*c*.
Paderno, V. N. See Paderno, Yu. B.
Paderno, Yu. B. See Severyanina, E. N.
Paderno, Yu. B., Ivanchenko, L. A., Bessaraba, V. I., and Vereshchak, V. M. Preparation of La hexaboride films by synthesis from the elements (3) 74*d*.
Paderno, Yu. B., Pilyankevich, A. N., and Paderno, V. N. Electron fractography of hexaborides of some alkali and rare-earth metals (5) 138*h*.
Paetsch, Dietrich Mathematical-statistical techniques in the modeling of experiments and solving ceramic problems (9) 242*j*.
Pajaczkowski, Andrzej See Priddle, John E.
Pajak, W. See Ptak, W.
Pajanne, E. See Hautojarvi, P.
Pajares, J. A. See Gonzalez de Prado, J. E.
Pajean, G., Delhopital, G., and Doumeng, M. Use of gas chromatography for studying the decomposition of glass batches (5) 111*c*.
Pakharukov, N. M., and Solov'ev, V. V. Ceramic properties of kaolins from the Karaotkelsk deposit (1) 22*g*.
Pakholkov, V. S. See Dolmatov, Yu. D.
Palashenko, V. I. See Karaulov, A. G.
Palatnik, L. S., Lashkarev, G. V., Sorokin, V. K., and Marincheva, V. E. Preparation and study of EuS thin films (3) 74*f*.
Palatnik, L. S., Marincheva, V. E., and Naboka, M. N. Structure and optical properties of oxidized EuS films (3) 75*f*.
Palermo, Robert F. See Francel, Josef
Palewski, T. See Suski, W.
Pal'guev, S. F. See Lipilin, A. S. ; Volchenkova, Z. S.
Palmer, A. W. See Ramachandran, V.
Palmer, G. G. See Greskovich, C.
Palmonari, C. See Gavioli, G. ; Sandrolini, F.
Palmour, Hayne, III, and Huckabee, Marvin L. Sintering finely divided particulates and resulting ceramic products, P (1) 31*e*.
Paluch, Edmund, Gawlicki, Marek See Derdacka, Anna
Palumbo, Dominic T. See Shaffer, Francis N.
Palumbo, Frances A. See Shaffer, Francis N.
Pamplin, Brian R. (Editor) Crystal Growth, B (7) 189*e*.
Pampuch, Roman (Editor) Structure and Properties of Ceramic and Metallic Materials (Proceedings of the International Colloquium on Materials Science and Engineering held in Krakow, Nov. 26-29, 1973), B (5) 148*g*. See Deren, Jerzy
Pampuch, Roman, Librant, Zdzislaw, and Piekarczyk, Jan W. Texture and sinterability of MgO powders (9) 241*h*.
Pampuch, Roman, Powroznik, Augustyn, and Kwatera, Andrzej Microscopic method of measuring the porosity of graphite electrodes (1) 32*g*.
Pampuch, Roman, and Ptak, Wieslaw Study of different SiC polytypes by ir spectroscopy (7) 187*i*.
Pampuch, Roman, and Smolarska, Ewa Heating of aluminosilicates in a dc electric field (3) 88*e*.
Pampuch, Roman, Tomaszewski, H., and Haberko, Krzysztof Hot-pressing of active MgO (9) 232*j*.
Panait, N. See Ienciu, M.
Panas, Walter See Allen, Fred E.
Panasenko, N. M. See Belyaev, E. K.
Panasyuk, A. D. See Samsonov, G. V.
Panchenko, N. I. See Puz, V. V.
Panchenko, O. A., Kharlamov, A. A., and Ptushinskii, Yu. G. Effect of electron-hole transfers on the static skin effect in W crystals (5) 137*d*.
Pandele, Liana See Marchidan, D. I.
Pandey, Raghvendra K. Nucleating growth of Pb-Sn-telluride single crystal with an oriented Ba fluoride substrate, P (5) 127*i*.
Pandiscio, Nicholas A. See Mlavsky, Abraham I.
Pandya, A. D., and Jaganmohan, A. Study of emissivity of furnace with introduction of pulverized coal particles (1) 33*g*.
Panev, G. S., Zavilopulo, A. N., Zapesochnyi, I. P., and Shpenik, O. B. Resonant charge exchange of alkaline-earth ions (5) 145*a*.
Panfilova, T. V. See Griner, I. K.
Pangarova, V. See Panova, S.
Panikovskaya, T. N. See Volkanshtein, N. V.
Panis, D. See Baumard, J. J. ; Odier, Ph.
Panish, Morton B. See Ilegems, Marc
Pankov, V. I. See Vinogradov, N. P.
Pankova, N. A. See Koz'min, M. I.
Pankova, N. A., and Levitin, L. Ya. Efficient degassing parameters for molten glass in tank furnaces (1) 7*c*.
Pankove, Jacques I. Electroluminescent semiconductor device, P (3) 76*a*.
Pankrashova, V. D. See Tikhomirova, M. F.
Pankrat'eva, S. V. See Filatova, V. N.
Pankratov, V., Angelov, G., V'lkova, I., and Dogandzhieva, R. Production of quick-setting slag portland cement using Ba-Mn slags of the Kremikovtsi metallurgical plant (9) 196*c*.
Pannetier, J. See Denes, Georges
Pannhorst, W. See Schneider, H.
Panov, G. E., and Tsivilev, R. P. X-ray diffraction study of the structure of ceramic materials (9) 224*a*.
Panova, S., Pangarova, V., and Gerasimov, E. Effect of some fluorides on the synthesis and sintering of mullite bodies (9) 209*j*.
Panova, S., Radkova, A., and Gerasimov, E. Sintering previously synthesized mullite ceramics (5) 120*d*.
Pantano, C. G., Jr. See Clark, A. E., Jr.
Pantano, C. G., Jr., Dove, D. B., and Onoda, G. Y., Jr. Glass surface analysis by Auger electron spectroscopy (7) 157*j*.
Panteleeva, G. V., and Karimov, R. Kh. Diffusion of impurities in semiconductor B (5) 137*h*.
Panteleimonova, A. A. See Kreingol'd, S. U.
Panti, B. N. See Chatterjee, N. B.
Panzarino, Joseph N. Surface chemistry, properties, and performance of a microwave browning dish (7) 160*c*. See Forker, Ray B., Jr.
Paoletti, G. Reduction of F loss during the production of opal glass (3) 59*c*; Absorption capacity of U glasses (5) 104*d*.
Paoletti, G., and Tedesco, L. Physical method for the determination of bivalent and trivalent Fe in sheet glass (1) 32*i*; Coloration of glass by rare earths: I, Generalities on rare earths (7) 155*h*.
Paoli, Thomas L. See Hakki, Basil W.
Paoli, Thomas L., and Hakki, Basil W. Cw degradation at 300°K of GaAs double-heterostructure junction lasers: I, Emission spectra (7) 170*c*.
Paorici, C., Romeo, N., and Tarricone, L. Negative resistance and memory effects in GaTe single crystals (7) 171*j*.
Papadopoulos, K. Kinetics of the Na metasilicate-sand reaction by an emf method (1) 9*a*.
Papakin, Kh. M. See Ostrovskaya, P. S.
Papen, E. L. J., and Raes, H. D. B. Experiences using isostatic pressing (1) 30*h*.
Papini, Francois See Arconada, Alain
Papke, Keith G. Talcose minerals in Nevada—talc, chlorite, and pyrophyllite (5) 134*f*.
Papp, A. See Harms, H.
Papp, A., and Harms, H. Polarization optics of index-gradient optical wave guide fibers (5) 109*c*.
Papworth, K. R. See Malozemoff, A. P.
Paramonova, V. A. See Butt, Yu. M.
Pardee, Robert P., Loran, Thomas J., Bickling, Archie L., Jr., and Brown, Richard E. Release and lubricating composition for glass molds and method and apparatus utilizing such composition, P (5) 113*j*.
Pardo, G. See Bruque, J. M.
Pardo, J., Martinez-Ripoll, M., and Garcia-Blanco, S. Crystal structure of Ni orthoborate, $Ni_3(BO_3)_2$ (3) 85*b*.
Pareja, R., Victoria, J., Serna, J., and Bru, L. Coincidence boundaries in phlogophite and zinnwaldite (5) 136*b*.
Parent, Claude See Salmon, Roger
Parfenov, B. V. See German, V. O.
Park, Cheol Won See Lee, Eung Sang
Park, Im Keun Pervious low-densitY C fiber-reinforced composite articles, P (3) 70*c*.
Park, Keum Churl, Choi, Suk Chin, and Park, Yong Kap Study of Fe compounds in Korean kaolin minerals (3) 92*i*.
Park, Soon Za Stannic oxide thick film (7) 172*c*.
Park, Yong Kap See Park, Keum Churl
Park, Yong Wan, and Kim, Chung Il Au balsam (3) 71*d*.
Parke, Sydney, Gomolka, S., and Sandoe, J. N. Effect of composition and temp. on the absorption and emission spectra of Mo in glasses (7) 156*h*.
Parker, John Melvyn See Paul, A.
Parker, R. J., and Zaretsky, E. V. Si_3N_4 used as a rolling-element bearing material (3) 68*j*.
Parkes, J., Tomlinson, R. D., and Hampshire, M. J. Fabrication of *p*- and *n*-type single crystals of $CuInSe_2$ (1) 39*a*.
Parkhomenko, Yu. N. See Galaev, A. A.
Parlee, N. A. D. See Fuwa, A.
Parmenter, Charles S. See Marshall, Thomas R.
Parmentier, Michel, Courtois, Alain, and Gleitzer, Charles System Sb_2O_3-WO_3 at 750°C (7) 187*i*.
Paropkari, A. L. See Balasubramaniam, K. S.
Parr, Norman L. Method of producing high-density Si_3N_4, P (9) 213*e*.
Parry, J. P. M. Is big no longer "best" (9) 207*b*.
Parry, R. J., and Dunning, Reginald Ophthalmic glass compositions, P (7) 162*d*.
Parseliunas, J. See Banis, T.
Parsels, David L. Method and apparatus for making elongated Si and SiC structures, P (9) 213*a*.
Parsons, Joseph R., and Rechter, Harold L. C composition and shaped article made therefrom, P (3) 69*c*.
Parsons, William F., Blair, Gerald E., and Maier, Clarence C. Molding glass lenses, P (3) 61*i*.
Partridge, G., and McMillan, P. W. Strengthening of glass by surface crystallization (1) 11*d*.
Pascoe, R. T. See Garvie, R. C.
Pashchenko, A. A., Kruglitskii, N. N., Cherednichenko, L. S., and Rudenko, I. F. Effect of the saturation coeff. on structural-mechanical properties of raw cement slurries (1) 2*d*.
Pashchenko, V. P. See Lisitsyn, S. M.
Pashchenko, V. P., and Potapov, G. A. Effect of synthesis temp. on the crystal-lattice defectiveness and degree of inversion of Mg ferrites (5) 138*j*.
Pashitskii, E. A. See Medvedev, M. V.
Pask, Colin, and Snyder, Allan W. Multimode optical fibers—interplay of absorption and radiation losses (9) 202*e*.
Pask, J. A. See Aksay, I. A.; Sweeting, Truett B.
Passerone, A., Biagini, E., and Lorenzelili, V. Wetting of Ba hexaferrite by molten metals (9) 218*j*.
Passmore, Edmund M. Electrically conductive refractory body, P (5) 121*g*.
Pastala, A. L. Contribution to the design of air separation equipment for closed circuit grinding systems (7) 150*i*; Recent innovations in reciprocating grate coolers (9) 196*j*.
Pasternak, A. A. See Erokhina, K. I.
Pasto, Arvid E. Forming high-density oxide pellets by hot-pressing at 50–100°C above the cubic to monoclinic phase transformation temp., P (1) 30*f*.
Pastor, H. See Broussaud, D.
Pastor, Ricardo C., Arita, Kaneto, and Robinson, Morton Alkaline earth metal halide crystals for laser windows, P (5) 111*a*.
Pastor, Ricardo C., and Robinson, Morton Preparing single crystals of $Li(Ho,Y,Er,Tm,Dy)F_4$ in HF atm, P (9) 219*i*.
Patel, Arun K., and Tsao, George T. Measurement of the effect of suspended small particles on turbulent mixing in pipe flow (9) 223*g*.
Patel, Himanshu M. See Wilcox, Harold D.
Patel, J. R., VanUitert, L. G., and Mathiot, A. X-ray diffraction topography of magnetic domains in orthoferrites (7) 172*g*.
Pathak, N. L., and Sen, S. C. Absorption and fluorescence spectra of Pb-activated alkali Ca borate glasses (3) 55*f*.
Patki, B. A. See Kher, V. G.
Patrick, R. F. See Whitworth, D. A.
Patrin, P. A., Mikhailovich, S. I., Shcherbakova, N. P., and Nikolaeva, V. D. Multiple use of raw materials in the production of Keramzit from clay shales (5) 100*d*.
Patrusheva, V. A., Belekhov, V. B., Levin, V. A., and Tsailingol'd, A. L. Phase composition of the system Fe_2O_3-MgO (1) 43*f*.
Patterson, Frank K. See Marcus, Sanford M.
Patterson, W. J. Improved printed-wiring boards for high reliability circuits (1) 26*h*.
Patton, W. J. (Editor) Materials in Industry, B (5) 148*g*.
Patzak, Ingeborg See Konopicky, Kamillo
Patzek, Z. Gas-permeable refractories (3) 65*g*.
Paul, A. Ce-Ti yellow color in glasses (9) 199*a*.
Paul, A., and Parker, John Melvyn Oxidation state and optical absorption of Rh in borate and silicate glasses (5) 108*i*.
Paul, William See Shevchik, Nigel J.
Paulavicius, A., and Jasutis, V. Switching effect in Cd-Ga-Te compound films and their crystallization (1) 27*c*.
Paulsen, Uwe See Korn, Roland
Paulus, Helmut See Halberschmidt, Friedrich
Paulus, M. See Lacour, C.
Paulus, M., Dubon, A., and Etienne, J. Application of ion bombardment in the structural study of argillaceous rocks by transmission electron microscopy (5) 130*i*.
Pauza, William V., and Poltonavage, Edward M. Multicontact electrical connector for a ceramic substrate, P (3) 76*i*.
Pavars, I. A. See Gel'd, P. V.
Pavelchek, E. K., and Doremus, Robert H. Static fatigue in glass—a reappraisal (9) 203*h*.
Pavelescu, M., Dumitrescu, H., and Adam, S. Fast-power-reactor optimization by the game theory (5) 128*e*.
Pavelescu, M., and Radulescu, D. Solving of elliptic equations with partial derivatives for fast nuclear reactors (5) 129*a*.
Pavlikhina, E. F., Pavlushkin, N. M., and Naidenov, A. P. Phase transformation during the heating of argillaceous raw materials (5) 109*b*.
Pavlikov, V. N. See Karpinos, D. M. ; Volkogon, L. M.
Pavlov, A. A. See Donat, E. V.
Pavlov, A. P. See Vasil'eva, T. A.
Pavlov, V. F. Improvements in the fritting and properties of ceramics (1) 23*h*. See Kurilina, M. I.
Pavlov, V. F., Alekseeva, L. L., and Mitrokhin, V. S. Effect of firing cycle on the thermal shock resistance of ceramic bodies (9) 230*h*.
Pavlov, V. F., and An, R. Y. Elimination of the black zone formed during high-speed firing of ceramic tiles (5) 123*i*.
Pavlov, V. F., Kalinovskii, V. V., and Bedrik, O. M. Use of low-melting clays in the production of floor tiles on continuous conveyor lines (5) 124*d*.
Pavlov, Yu. A., Manukhin, A. V., and Melekhin, V. F. Mechanism of the reaction of ZrO_2 with C at high temps. (3) 89*f*.
Pavlova, G. A. See Kornev, V. V.
Pavlova, I. See Dimitrov, Z.
Pavlova, I., Khranova, V., Dimitrov, Z., and Dimitrova, E. Production technology of mosaic tiles, with a low-temp. sintered enamel surface (9) 216*a*.
Pavlova, I., Tashkova, A., and Dimitrova, E. Optical properties of sheet glass with metal oxide coatings (9) 202*h*.
Pavlova, V. A. See Tumanov, S. G.
Pavlova, V. N. See Minakov, V. A.
Pavlova, Yu. Petrographic studies of grog refractories after their use in glass tank furnaces at the Stind glass plant (9) 210*h*.
Pavlova, Yu., and Kostadinov, I. Mineralogical zoning in Dinas brick used in the burners of glass tank furnaces in the Stind glass plant (5) 118*j*.
Pavlushkin, N. M. See Pavlikhina, E. F.
Pavlushkin, N. M., and Sarkisov, P. D. Use of industrial wastes in the production of glass and glass-ceramics (1) 13*b*.
Payne, Charles C. See Miller, Richard C.
Payne, D. A. Development and evaluation of gunning mixtures applied with a lab pneumatic spray gun (3) 50*i*.
Payne, D. A., and Schmidt-Elsenhart, S. Tests made with a laboratory spray gun for applying refractory spray mixtures

(3) 68*e*.

Payne, David N., and Gambling, W. Alec Resistance-heated high-temp. furnace for drawing SiO_2-based fibers for optical communications (5) 133*e*.

Pchelyakov, K. A., Sokolova, V. P., Lesnova, G. A., and Ostapenko, V. Z. Flame-electrical founding of bottle glass (5) 106*e*.

Peacey, John G. See Grimshaw, Rex W.

Peacos, M. M. See Bibbo, P. P.

Pearce, N. See Bradshaw, Arthur

Pearne, Florentin J. See Pearne, Frank S.

Pearne, Frank S., Pearne, Florentin J., Osborn, William P., and King, Terance M. Brick handling system, P (3) 63*c*.

Pearsall, T. Growth of single crystals of ReO_3 by chemical vapor transport (1) 39*g*.

Pearson, A. David See Nagel, Suzanne R.

Pease, R. W. See Guven, Necip

Pechatinkov, G. G. See Mirkin, I. K.

Pechenkina, A. N. See Meshcheryakov, N. A.

Pechkovskii, V. V., Dzyuba, E. D., Salonets, G. I., and Yaglov, V. N. Formation of TiP_2O_7 on dehydration of Ti-$(HPO_4)_2.H_2O$ (9) 232*b*.

Pechnezhskii, V. I. See Shakhtin, D. M.

Pechuro, S. S. See Piskarev, V. A.

Pedregosa, J. C. See Baran, Enrique J.; Botto, Irma L.

Pedro, Georges See Melfi, Adolpho J. ; Sheddoh, F.

Pehlke, R. D. See Mazandarany, F. N.

Pei, Yu K. Glass-ceramic recuperator, P (5) 112*d*.

Peka, G. P., Brodovoi, V. A., Zernov, S. L., and Mirets, L. Z. Recombination mechanisms and parameters of deep centers in compensated GaAs (5) 144*g*.

Pelczar, Stanislaw, and Huczwa, Janina Spectrographic analysis of glass sands (3) 80*j*.

Pelevin, O. V. See Lakeenkov, V. M.

Pellett, Fred G. Refining molten glassmaking materials, P (5) 113*j*.

Pellissier, Henri See Boyer, Pierre

Pelton, John F. Machine for spray coating irregular shapes, P (3) 79*h*.

Penberthy, L. Changing emphasis on heat sources for glass-melting (5) 105*a*.

Peng, J. See Magee, T. J.

Penkala, Barbara Reduction of expansion of concretes with reactive aggregates from carbonate rocks (7) 152*e*.

Penny R. N. Gas turbine rotary heat exchanger, P (3) 69*c*; Gas turbine engine housing, P (5) 121*j*; Rotary regenerative heat exchanger, P (5) 133*a*.

Pentecost, J. L. See Lee, Jae Do

Pentek, Laszlo, Jr. Application of grinding aids (5) 98*a*. See Scheer, L.

Pentinghaus, H. See Phillips, Michael W.

Pentinghaus, H., and Kroll, Herbert Orthorhombic Sr-$[Al_2Ge_2O_8]$. New variant of the feldspar structure (9) 236*j*.

Pepe, F., Schiavello, M., and Ferraris, G. Characterization of CoO-ZnO solid solutions (7) 179*f*.

Pepper, Roger T., and Bucherati, Frank Graphite-fiber-reinforced metal composite, P (3) 55*b*.

Pepper, Stephen V. Effect of adsorbed films on friction of Al_2O_3-metal systems (9) 230*e*.

Pepplinkhouse, H. J. See Tauber, E.

Peralta, Antonio Loper, and Castellanos Eslava, Luis M. Process for making refractory materials of refractory products and the refractory materials or refractory products made thereby, P (9) 213*i*.

Peregood, D. P. See Mel'nikov, N. I.

Perel, V. I. See Dyakonov, M. I.

Perepelenko, V. N. See Minakov, V. A.

Perepelitsyn, V. A. See Batrakov, N. A. ; Bron, V. A. ; Diesperova, M. I. ; Khoroshavin, L. B. ; Pilipchatin, A. D.

Perepelitsyn, V. A., Diesperova, M. I., Shcherbakov, A. F., and Poletaev, I. A. Magnesites of the Savino deposit (5) 134*d*.

Perepelitsyn, V. A., Freidenberg, A. S., Boriskova, T. I., and Ustyugov, A. A. Mineral formation and wear of refractories in the roofs of open-hearth and double-tank furnaces (5) 118*h*.

Perepelitsyn, V. A., Freidenberg, A. S., and Sorokin, I. N. Formation of lining slag in a blast-furnace stack (9) 209*d*.

Perepelitsyn, V. A., Mityushov, N. A., Zubakov, S. M., and Kononenko, G. V. Mineral formation and wear in the chromite-periclase refractory prepared from molten materials in the roof of an open-hearth furnace (9) 210*d*.

Pereselentseva, L. N. See Samoilenko, V. G.

Peretto, P. See Jeandey, C.

Perevezentsev, B. V. See Sorokin, V. N.

Perez, Enrique Gippini Effect of electrolytes on ceramic bodies (9) 206*f*.

Perez y Jorba, M., Tilloca, G., Michel, D., and Dallas, J. P. Corrosion of stained glass from old French churches (1) 1*j*.

Perez-Bustamante, J. A. See Alvarez Jimenez, M. D.

Perfilev, M. V. See Ioffe, A. I.

Perko, J. F., and Spirko, E. J. Blast furnace refractory lining wear status using radioactive sources: I–II (1) 16*h*.

Permikina, N. M. See Rutman, D. S.

Perminov, A. A. See Svetlov, V. A.

Perminova, Yu. N., and Nemykina, T. I. Use of fuel wastes as additives (5) 102*h*.

Permyakov, P. G., Korshunov, B. G., and Krokhin, V. A. System $LaCl_3 + CaO \rightleftharpoons LaOCl + CaCl_2$ (1) 46*g*.

Perot, Jean P. See Chotin, Francois

Perrin, J. See Heyraud, J. C.

Perry, Charles H., Wilson, Larry K., and Kinser, Donald L. Thermodynamic predictions of reactions in reduced transition metal phosphate melts (1) 47*c*.

Perry, Joseph P. See Luce, Robert L.

Perry, Louis W., Jr. See Fisher, Colin R.

Perry, Walter M. Rotary forming unit for fine mineral fibers, P (5) 114*b*.

Persson, Gosta See Engstrom, Bengt

Pertlik, F. See Fischer, R.

Perugini, G. Ceramic materials for high-temp. operations: III (9) 197*h*; Ceramic materials for high-temp. operations (9) 208*g*.

Peschl, Ivan A. S. Z. Method and device for measuring the shearing stress of powdery and/or granular material, P (7) 177*d*.

Peshev, P., and Ivanova, M. Growth of Ti_2O_3 single crystals by a chemical transport reaction (1) 39*h*.

Pesina, N. M., Ivanova, M. P., and Zykova, L. K. Experimental use of Berlin clay for mfg. ladle brick (1) 17*d*.

Peteanu, M. See Stanescu, L.

Peters, Dennis, and Hummel, Floyd A. Solid solubility between sulfate and chromate hauynites (7) 186*f*.

Peters, G. S. J. Waste heat utilization from kilns and dryer plant (5) 133*g*.

Peters, Thomas E. Vacuum holder in epitaxial growth apparatus, P (1) 29*b*.

Petersen, Carl T. See Koch, George R.

Petersen, Paul E. See Schulze, Richard G.

Peterson, Dwight R. See Goldinger, John A.

Peterson, G. E., Kurkjian, C. R., and Carnevale, A. Calculation of NMR line shapes in glass: II, Nonzero asymmetry parameter (1) 5*h*.

Peterson, George N. Reinforced grinding wheel, P (7) 149*i*.

Peterson, George R. Brazing graphite to graphite, P (7) 167*d*.

Peterson, Joseph C. Apparatus for recovering sulfuric acid and ferrous sulfate crystals from spent pickle solution, P (1) 31*a*.

Petit, J. Concretes designed for blast-furnace shafts—some physical properties (7) 164*i*.

Petitet, J. See Denielou, L.

Petkovic, J. See Uskokovic, D.

Petot, C. See Petot-Ervas, G.

Petot-Ervas, G., Farhi, R., and Petot, C. Standard Gibbs free energy of formation of SnO_2 from high-temp. emf measurements (7) 187*a*.

Petr, Vlastimil See Rosa, Josef

Petrashov, V. T. See Bronnikov, A. D.

Petrenko, Yu. M., Savina, L. A., and Sukhotinskii, V. L. Resistance of enamels to orthophosphoric acid (1) 4*b*.

Petrescu, Valeria See Sternberg, S.

Petretis, B., Baceviciute, K., Montrimas, E., and Tamosiunas, S. Structure investigation of conductive breakdown filaments in electrophotography (1) 27*a*.

Petretis, B., Rogass, H., and Satas, A. Dependence of several electrophotographic parameters of Se layers on the substrate material (9) 217*b*; Influence of the substrate material on the structure of condensed Se layers (9) 217*j*.

Petrikat, Klaus R. Capacitor with glass-metal conductive layer, P (5) 126*j*.

Petrikhina, G. A. See Krupin, A. A.

Petrillo, G. A., and Kao, K. C. Effects of electrode materials on the switching behavior of the amorphous semiconductor Si_{12}-Ge_{10}-As_{30}-Te_{48} (1) 38*c*.

Petrin, N. V., Golub, V. Ya., Fomenko, V. A., and Bogoslovskaya, L. N. Zr products for the stopperless casting of steel (9) 212*a*.

Petroff, P., and Hartman, R. L. Rapid degradation phenomenon in heterojunction GaAlAs-GaAs lasers (9) 238*g*.

Petrov, A. N. See Zhukovskii, V. M.

Petrov, A. V. See Kovalev, N. N.

Petrov, K. I. See Orlin, N. A. ; Tananaev, I. V.

Petrov, R. A. See Krinchik, G. S.

Petrov, S. V. See Tsiklauri, Ts. G.

Petrov, V. M. See Berger, L. I. ; Groznov, I. N.

Petrov, Yu. A. See Shevyakov, A. M.

Petrov, Yu. B. See Ganyuchenko, V. M.

Petrova, E. V. See Karklit, A. K.

Petrova, G. P. See Fadeeva, V. S.

Petrova, G. V. See Gural'nik, P. B.

Petrova, M. See Babachev, G.

Petrova, M., and Babachev, G. Rapid analysis of raw material mixtures (powder or slurry) for the production of portland cement clinker (9) 196*g*.

Petrova, M. A. See Popov, V. P.

Petrova, V. Z., Fedorova, L. F., and Sosova, I. A. Moisture resistance of glasses of the system B_2O_3-ZnO-PbO (9) 202*c*.

Petrova, V. Z., and Greben'kova, V. I. Influence of additives K_2O and P_2O_5 on the crystallization process of the Li_2O-ZnO-SiO_2 glasses (3) 57*d*.

Petrova, V. Z., Nikitina, N. G., and Podobed, G. E. Kinetics of etching B-Zn-Pb glasses in acetic and nitric acids (9) 201*d*.

Petrovic, J. J., and Jacobson, L. A. Controlled surface flaws in hot-pressed SiC (3) 85*d*.

Petrovic, J. J., and Mendiratta, M. G. Mixed-mode fracture from controlled surface flaws in hot-pressed Si_3N_4 (5) 142*f*.

Petrovich, Vojislav Froth flotation method for recovery of minerals, P (3) 83*c*.

Petrovskaya, M. L. See Artyushkina, N. G.

Petrovykh, N. V. Glass of high translucency and ionic conductivity, P (3) 61*e*.

Petrzilka, V. See Sedlakova, L.

Petti, R. J. See Varshneya, A. K.

Pettini, G. P. Exploitation of automation for single-fire production (9) 215*e*.

Petukhov, S. V. See Koryavin, A. A.

Petukhova, L. P. See Inyushkina, T. L.

Petunina, A. Ya. See Kozlova, A. E.

Petzenhauser, I. See Gugel, E.

Petzenhauser, Isfried See Feld, Harald ; Fickel, Albrecht

Petzi, F. Use of pusher-type kilns in the sintering process (5) 126*f*.

Petzold, Armin See Schnapp, Juergen Dieter

Petzold, Juergen Manufacture of a Zerodur telescope mirror blank with a diameter of 3.6 m for the Max Planck Society (7) 158*i*.

Petzow, Guenter See Huseby, Irvin C.

Peukert, Janina Utilization of waste Ba compounds in the production of high-strength cements (7) 153*g*.

Peukert, Janina, and Garbacik, Albin Utilization of waste materials containing B and Cr in high-strength cement technology (7) 153*h*.

Peyrani-Osorio, Enrique See Martin, John

Pezerat, H. See Suquet, H.

Pfeiffer, E. See Guttmann, J.

Pfeil, Emanuel See Broemer, Heinz

Pfluger, C. E. X-ray diffraction (9) 224*a*.

Pfuhl, H. Mfg. of flatware in the fine ceramic industry (3) 71*h*.

Pharis, P. W. Essential ingredients in the implementation of an effective hearing conservation program (3) 78*d*.

Phelps, Eric Protecting refractory lining in containers for molten metal, P (9) 214*c*.

Phelps, Girard W. Reformulation of whiteware bodies (7) 169*i*.

Philbrick, John W., and Wuestenhoefer, William C. Vapor deposition of Ga As phosphide on Ga As substrates, P (5) 128*i*.

Philipp, Herbert R. See Levinson, Lionel M.

Philippot, Etienne See Astier, Rene ; Moret, Jacques

Philippot, J. C. See Chesneau, F.

Phillips, J. R., Waterbury, G. R., Vanderborgh, N. E., and Marshall, T. K. Quantitative determination of fission products in irradiated fuel pins using nondestructive gamma scanning (1) 29*j*.

Phillips, Michael W., Kroll, H., Pentinghaus, H., and Ribbe, Paul H. Structures of synthetic paracelsian analogs, Sr-$Ga_2Si_2O_8$and $SrGa_2Ge_2O_8$ (3) 92*g*.

Phillips, N. J. See Emmony, D. C.

Phillips, William Reduction of Fe in Fe-doped Li niobate crystals, P (5) 128*c*.

Phipps, Charles M. See Hayes, Douglas R.

Pialoux, A. See Achour, M.

Piasecki, Felix J. See Nickelsen, Hubert O.

Piatkowski, Wieslaw New types of basic refractory materials for steel furnaces (9) 210*e*.

Piche, L. See Jaeckle, J.

Pick, A. N. See Clark, G. M.

Pickles, A. E., and Norcross E. Lightweight kilns—a new development (3) 66*d*.

Picquet, P. See Fierens, P.

Pieczara, Stefan [Behavior of] alkalis, chlorides, and S during dry burning of portland clinker in rotary kilns (7) 149*j*.

Piegneur, P., Maes, A., and Cremers, A. Heterogeneity of charge density distribution in montmorillonite as inferred from Co adsorption (3) 88*g*.

Piekarczyk, Jan W. See Pampuch, Roman

Piekoszewski, J., Suwalski, J., Dabrowski, L., and Makolagwa, S. Moessbauer effect of a singly subsituted YIG system in an applied magnetic field (3) 74*f*.

Pieniazek, Tadeusz See Milewska, Aurelia

Pieper, G. F. See Viehmann, W.

Pieper, Heinrich See Graff, Klaus

Pieper, Helmut Method and apparatus for melting and subsequently refining glass, P (7) 162*a*.

Pierce, Richard H. Silicate dissolving, P (1) 35*a*; Granular hydrated alkali metal silicate, P (3) 83*c*; Highly siliceous alkali metal silicate glass and hydrated powder, P (5) 113*e*; Silicate dissolving, P (9) 226*b*.

Pieri, Giovanni See Bedetti, Gianfranco

Pierre, Andre P. Glass sheet annealing lehr, P (9) 205*e*.

Pierson, Joseph E. See Bartholomew, Roger F.

Pierson, Joseph E., and Stookey, Stanley D. Glass-ceramics containing $[SiO_2]$ fibers exhibiting thermoplastic properties, P (7) 161*g*.

Piggott, M. R. See Prabriputaloong, K.

Pikashov, V. S. See Kononko, V. P.

Pikashov, V. S., Kononko, V. P., Krivokon, A. A., and Kochetov, V. S. Equipment for the automatic control of heat exchange between the flame and the reflecting surface of glass mass (9) 200*i*.

Pikus, G. E., and Bir, G. L. Optical orientation of excitons in cubic crystals (5) 143*c*.

Pilipchatin, A. D., Perepelitsyn, V. A., and Gudz, L. F. Fracture mechanism of high-Al_2O_3 refractories in the crown of an arc furnace with a neutral medium (9) 209*d*.

Pilkington, Alastair Future of the glass industry (5) 106*g*.

Piltz, G. Industrial trials on the use of colliery waste admixtures at a number of brick plants (3) 63*b*.

Piltz, G., and Schmidt, Heinz Data obtained on the purpose-designed production of bricks with specific qualities by regulating the sintering processes (7) 163*j*.

Piltz, G., Schmidt, Heinz, Hilker, E., and Hesse, E. Sintering process in structural clay products (9) 207*a*.

Pilyankevich, A. N. See Paderno, Yu. B.

Pinaev, A. A. See Knigina, G. I.

Pinaeva, M. M. See Ustimovich, A. B.

Pincus, Alexis G. Glass Division's role [in the American Ceramic Society] (9) 200*d*.

Pine, Lloyd A. B_2O_3-Al_2O_3 catalyst base, P (9) 226*g*.

Pingaud, Bernard J. See Audran, Roger G. L.

Pinnavaia, T. J. See McBride, M. B.

Pinnow, Douglas A. See Camlibel, I. ; Ostermayer, F. W., Jr. ; Wemple, S. H.

Pinnow, Douglas A., Dabby, F. W., Camlibel, I., and Warner, A. W. Preparation of high-purity SiO_2 (3) 58*f*.

Pionke, J. See Gray, J. M.

Piorkowski, Joseph Spraying apparatus, P (9) 222*c*.

Pires, Joaquim Monteiro Pure Th oxide manufacture (9) 226*a*.

Piriou, B. See Faucher, M.

Pirogov, A. A. See Drizheruk, M. E. ; Gaodu, A. N. ; Saenko, E. P. ; Yutina, A. S.

Pirogov, A. A., Saenko, E. P., Drizheruk, M. E., and Grigor'ev, I. V. Experimental production of kyanite-sillimanite lightweight aerated refractories (1) 17*c*.

Pirogov, Yu. A., and Fisherov, A. I. Effect of the composition and MgO raw material on the strength of guniting compounds bound with phosphate (9) 209*e*.

Pirogov, Yu. A., Ospishcheva, V. A., Babkina, L. A., and Prokudin, V. Yu. Guniting the roofs of open-hearth furnaces at the Kommunarsk plant (1) 17*j*.

Pirogov, Yu. A., Prokopenko, M. I., and Boltyanskii, A. V. Effect of composition of gunite masses on bond strength of magnesite-chromite coatings on masonry (1) 17*a*.

Pirooz, Perry P. Glass conduit for electrical conductor, P (1) 14*i*; Opalescent article having a colored bulk and at least one surface strata of a different color than the bulk, P (1) 14*j*; Vitreous seals for glass electrical conduits, P (1) 15*i*; Conductively coated crystalline glass article, P (3) 60*e*.

Piryutko, M. M. See Makarova, T. A.

Pisarev, R. V. See Grzhegorzhevskii, O. A.

Pisareva, N. V. See Degtyareva, E. V. ; Kabakova, I. I.

Pisareva, N. V., Degtyareva, E. V., Kabakova, I. I., and Gul'ko, N. V. Metal stability and wear of corundum refractories in a cupola mixer (3) 66*g*.

Pisarevskii, A. M. See Ershov, O. S.

Pisbch, I. V., and Chekrygina, Z. V. Effect of fillers on the opacification of enamels (1) 4*i*.

Piskarev, V. A., Lyul'ko, R. L., and Pechuro, S. S. Improving the quality of gypsum plaster and gypsum concrete by the addition of Na-Al methylsiliconate (5) 100*g*.

Pisters, H. Methods, innovations, and operational experience at the new Readymix cement plant at Beckum (5) 100*b*.

Pitak, N. V. See Bakalkin, A. P. ; Gaodu, A. N. ; Kochetova, A. P. ; Lysak, S. V.

Pitak, N. V., Antonov, S. A., and Ansimova, T. A. Effect of the gaseous medium on the formation and service life of mullite and mullite-corundum refractories (1) 17*c*.

Pitak, N. V., Antonov, S. A., and Zhukova, Z. D. Reaction of mullite-corundum refractories with Fe oxides in different media (5) 119*b*.

Pitsch, Johann, and Lasserre, Pierre Mechanically reinforced high-porosity partly fused glass fiber galvanic separator, P (7) 162*g*.

Pitt, C. W., Gfeller, F. R., and Stevens, R. J. Rf sputtered thin films for integrated optical components (3) 75*a*.

Pitt, J. J. Mining high-lime Queenston Shale (5) 134*e*.

Pitts, Frank Stabilized ZrO_2, P (9) 226*b*.

Piven, I. Ya. See Kukolev, G. V.

Piven, N. I. See Ved, E. I.

Pivinskii, Yu. E., and Natsenko, A. I. Rheological and technological properties of mixed suspensions of refractory components (1) 19*e*.

Pivnik, L. Ya. See Mikhailov, Yu. F.

Pivovarova, L. N. See Makarova, T. A.

Plaettner, R. D. See Grabmaier, J. G.

Plakhov, G. F. See Popolitov, V. I.

Plaskett, T. S. See Matthews, J. W.

Platonov, B. P. See Kaibicheva, M. N.

Platonov, Yu. B. See Kaibicheva, M. N.

Platt, Ben C., Icenogle, H. W., Harvey, J. E., and Korniski, R. Technique for measuring the refractive index and its change with temp. in the ir (5) 132*f*.

Pleskacheva, T. B. See Valyashko, E. G.

Plesslinger, Gertraud A. A., Berthold, Frank, and Roeder, Erwin Glass-ceramic material resistant to Na vapor, P (5) 112*d*.

Pletnev, R. N., Lisson, V. N., Chirkov, A. K., and Fotiev, A. A. Measurements of local magnetic and electric fields of rare earth orthovanadates (9) 235*b*.

Plewa, J. See Ptak, W.

Plotkin, S. S., Plyushchev, V. E., Rozdin, I. A., and Romanov, V. P. Electrophysical properties of ceramics in the systems V_2O_5-M_2O_3(M = In,Tl) (9) 231*b*.

Plotnikov, V. K. Packaging techniques for perforated refractory blocks (9) 210*f*.

Plourde, J. K., Linn, D. F., O'Bryan, H. M., Jr., and Thomson, John, Jr. $Ba_2Ti_9O_{20}$ as a microwave dielectric resonator (1) 24*d*.

Plourde, James K. See O'Bryan, Henry M., Jr.

Plumat, Emile Method and apparatus for vertically drawing a glass ribbon, P (7) 162*a*.

Plumat, Emile, and Demoulin, Pierre Glazing panel with conductive strips, P (1) 14*c*.

Plumat, Emile, and Mairesse, Jean P. Method and apparatus for preheating vitrifiable batch, P (7) 162*a*.

Plumat, Emile, Schottey, Jean, and Toussaint, Francois Colored transparent articles, P (1) 13*i*.

Pluschkell, Wolfgang See Valet, Peter-Michael

Pluth, J. J. See Mortier, W. J.

Plyushchev, V. E. See Plotkin, S. S. ; Savel'eva, M. V. ; Varfolomeev, M. B.

Poate, John M. See Mayer, James W.

Pobedimskaya, E. A. See Naumova, I. S.

Pochard, Raymond See Delisle, Jean P.

Pockrand, I., and Verweel, J. Magnetic domains in thin sputtered FeSi films: I, Edge effects and influence of the substrate temp. and the Ar pressure during sputtering (1) 26*e*.

Podchernyaeva, I. A. See Samsonov, G. V.

Poddubnyi, I. M., Kakharov, V. K., and Nudel'man, B. I. Production of industrial-grade lime in rotary kilns (5) 101*h*.

Podgorecka, Aleksandra See Fryt, Ewa

Podkin, Yu. G. See Rozental, O. M.

Podlesnyi, V. S. See Sergeev, N. I.

Podnik, Narodni See Strojirny, Prerovske

Podobed, G. E. See Petrova, V. Z.

Podolyaka, A. N. See Uspenskii, V. A.

Podor, B., Nador, N., and Bertoti, I. Role of space-charge scattering in epitaxial GaAs (5) 126*g*.

Podschus, Ernst Active Al_2O_3 in bead and powder form, P (9) 226*e*.

Poegel, H. J. Ceramic articles, P (5) 124*g*.

Poeschel, Eva See Heide, Helmut

Poeschmann, H. Determination of chemical resistance of enamel (7) 153*h*; Chemical resistance of glazes (9) 194*d*.

Pogge, Hans B. See Broadie, Robert W.

Pogorelov, B. N. See Gubenko, A. Ya.

Pogorelova, D. A. See Osipova, I. I.

Pohanka, R. C., Rice, R. W., and Walker, B. E., Jr. Effect of internal stress on the strength of $BaTiO_3$ (3) 86*f*.

Pohanka, Robert C. See Walker, Basil E., Jr.

Pohlmann, Hans Juergen, Schricker, Karl, and Schueller, Karl Heinz Ceramics as material for molding glass—a new material for the glass industry (7) 155*b*.

Poirson, G. See Courrier, B.

Poirson, G., Gourlaouen, J. C., and Goublaire, B. Refractory material—gunned grout-cement (9) 211*b*.

Pokorny See Lindmayr

Polak, Ada Koefoed goblet (3) 49*i*; Glass—its Makers and Its Public, B (3) 94*a*.

Poletaev, I. A. See Perepelitsyn, V. A.

Polezhaev, Yu. M., Proshchenko, E. G., and Krasnobaev, A. A. Isothermal and polythermal recrystallization of metamict zircons (1) 40*j*.

Polhemus, John Heat stress–measurement, experience, and legislation (3) 78*e*.

Polinsky, Murray A. Vapor deposition, P (5) 128*i*.

Polishchuk, V. S. See Kukolev, G. V.

Pollack, Gordon P., Fish, John G., and Shortes, Samuel R. Composition for use in forming a doped oxide film, P (3) 76*e*.

Pollak, Fred See Shin, S. H.

Pollert, E. See Holba, P.

Pollifrone, G. G., and Ravaglioli, A. Ceramic raw materials from Sardinia: I, Refractory clays and their use (9) 225*g*.

Pollner, Rudolf See Esper, Friedrich J.

Pollock, E. Kears Method and apparatus for stabilizing movement of glass during its advance along a molten metal surface, P; For selectively cooling glass during its advance along a molten metal surface, P (5) 113*a*.

Pollock, H. M. See Emmanuel, A.

Pollock, J. M. See Linford, R. G.

Pollyak, V. V. See Dubrovina, N. V.

Polnikov, V. G., and Rayaboshapko, V. A. Galvanomagnetic phenomena in thin conductor layers (5) 140*a*.

Poltavtsev, Yu. G., Zakharov, V. P., Gerasimenko, V. S., and Shvets, V. I. Structure of As_2S_3-based glasses (5) 110*j*.

Poltonavage, Edward M. See Pauza, William V.

Poluboyarinov, D. N. See Kozlova, A. E.

Poluboyarinov, D. N., Gordova, M. R., Kuznetsova, I. G., and Shalamova, I. P. Production and properties of high-density bodies from AlN (5) 126*d*.

Poluboyarinov, D. N., Gulaev, V. M., Levi, V. S., and Bakunov, V. S. Apparatus for studying the thermomechanical properties of refractories during bending at 4 points (3) 63*j*.

Polukhin, V. N., and Filippov, N. A. Glass for coating glass fiber elements, P; Core glass for glass fiber elements, P (9) 204*j*.

Polupanova, T. I. See Gavrilov, F. F.

Polyakov, S. A., Solomatina, T. V., and Shishkina, L. M. Use of nonabrasive SiC in rammed masses for the linings of boiler assembly furnaces (5) 121*f*.

Polyakova, E. A. See Sagalov, Z. V.

Polyanskii, Yu. V. See Dol'nikov, A. E.

Pomerantz, Daniel I. Improving the adherence of metal films deposited on glass substrates, P (1) 28*f*.

Poncelet, G. See Lerot, L.

Ponomarchuk, S. M. See Barinov, Yu. D.

Ponomarenko, T. I. See Trunov, A. M.

Ponomarev, N. M. See Daunov, M. I.

Pontius, Paul E. Mass measurements—a study of anomalies (9) 223*f*.

Ponyatovskii, E. G. See Belash, I. T.

Poole, James P., and Snyder, Herbert C. Chemically strengthened glass containers by ion exchange (5) 105*c*.

Poole, N. J. Effects of aging and compressive stress on the properties of $BaTiO_3$ ceramics (1) 25*i*.

Pope, James M., and Radford, Kenneth C. Stable reactor fuel of controlled density using active UO_2 powders (9) 220*e*.

Popel, S. I., Tsarevskii, B. V., and Bakkin, V. G. Wetting of refractory oxides by metallic and slag melts (1) 20*g*.

Popescu, I. M. See Apostol, I.

Popica, Stana See Cormos, Liviu

Popil'skii, R. Ya. See Kurilina, M. I. ; Takher, E. A.

Popolitov, V. I. See Sych, A. M.

Popolitov, V. I., and Plakhov, G. F. Crystallization of Bi orthotantalate (9) 228*f*.

Poponiak, Michael R. Gettering contaminants in monocrystalline Si, P (5) 127*a*.

Popov, A. D. See Klyachin, V. V. ; Mikhailov, Yu. F.

Popov, A. I. See Geller, I. Kh.

Popov, Alexandr N., Katsevich, Leonid S., and Rozenberg, Vladimir L. Electric furnace, P (7) 177*j*.

Popov, E., and Lyakov, D. Analysis of the raw materials for the production of packaging glass in Bulgaria: I (9) 199*b*.

Popov, E., and Popov, K. Effect of small additions of Li_2O, K_2O, MgO, ZnO, and P_2O_5 on Ti powder enamels for cast iron (9) 198*c*.

Popov, E. I., Koseva, E., and Popova, E. Errors in the analysis of common glass batch (5) 106*b*.

Popov, I. V. See Gol'dshtein, L. Ya.

Popov, K. See Popov, E.

Popov, M. I., Butnyakov, A. I., Nikanorova, Z. P., and Tsepeleva, T. G. Service life of refractories during high-temp. glassmelting (1) 19*j*.

Popov, O. N. See Bondarev, Konstantin T.

Popov, V. A. See Matveev, A. F.

Popov, V. E. See Gurin, V. N.

Popov, V. P., and Petrova, M. A. Synthesis and electrical properties of rare earth germanates (3) 92*d*.

Popov, Yu. F. See Belov, K. P.

Popova, E. See Popov, E. I.

Popova, Ek., and Khadzhiiska, St. Analysis of quartz sands: II (3) 82*d*.

Popova, L. I. See Dol'nikov, A. E.

Popova, L. N., Gundarina, Z. I., Golubev, V. V., and Fadeev, S. F. Grog-talc refractory bodies containing a phosphate binder (5) 117*h*.

Popova, V. I. See Khoroshavin, L. B.

Popovic, Dragan See Mueller, Ernst

Popovich, A. I. See Galkin, A. A.

Popovich, I. L. See Kopinets, I. F.

Popovkin, B. A. See Klimakov, A. M.

Popper P. (Editor) Special Ceramics: Vol 6—Proceedings of the Sixth International Symposium of Special Ceramics Held by the British Ceramic Research Association at Stoke-on-Trent, July 1974, B (3) 96*c*.

Popudrenko, M. K. See Kostinskii, E. P.

Porai-Koshits, M. A. See Kuznetsov, V. Ya.

Porozov, Yu. P. See Aivazov, V. Ya.

Port, David J., Lafferty, William D., and Cheney, Richard F. Cermet plasma flame spray powder and articles produced therefrom, P (9) 198*e*.

Porte, Robert See Delisle, Jean P.

Porter, D. L., Bansal, G. K., and Heuer, A. H. Reply to "Precipitation in partially stabilized ZrO_2" (5) 136*b*.

Portier, Richard, Carpy, Alain, Fayard, M., and Galy, Jean Perovskite-like compounds $ABO_{3+x}(0.44 \leq x 0.5)$. Electron microscopy survey on the the $(NaCa)_nNb_nO_{3n+2}$ $(4n \leq 4.5)$ homologous series (9) 236*h*.

Portier, Richard, Lefebvre, Simone, Fayard, Michel, and Lejus, Anne Marie Enantiomorphous ordered domains in stoichiometric $LiAl_5O_8$ (1) 38*b*.

Portnoi, V. K. See Fadeeva, V. I.

Portnova, A. I. See Degtyareva, E. V.

Portnova, L. I. See Degtyareva, E. V.

Posner, A. S. See Boskey, A. L.

Posokhova, E. D. See Orlova, I. G.

Pospisil, J. See Wykrent, C.

Postma, Lambertus Multilayered photosensitive material having glass substrate, P (5) 113*c*.

Potapov, G. A. See Pashchenko, V. P.

Potapov, V. P. See Nikolaev, I. N.

Potashnikov, Yu. M. See Kusel'man, I. I.

Potemkin, A. V. See Arsen'ev, P. A.

Potemkin, A. Ya. See Glazov, V. M.

Potetenko, L. V. See Gal'perina, T. Ya.

Potter, Ralph A., and Tennery, Victor J. U_3N_4, P (9) 221*g*.

Pouchard, Michel See Bayard, Michel ; Doumerc, Jean-Pierre ; Vlasse, Marcus

Poupeney, Mollie Rosa Real de Nieto—Mexican potter (9) 193*i*.

Pout, Christopher R. See Davies, Evan E.

Povkhan, T. I. See Akimov, I. A.

Powell, George L. See Holcombe, Cressie E., Jr. ; Morgan, C. S.

Powell, J. Anthony, and Will, Herbert A. Epitaxial growth of 6H SiC in the temp. range 1320–1390°C (7) 170*j*; Fabricating SiC semiconductor devices, P (9) 219*h*.

Powell, Jimmie L. See Frieser, Rudolf G.

Powell, Joseph W., and Fleck, James N. Powder metallurgy [isostatic] compacting, P (7) 175*b*.

Powell, Orlo A., Jr., and Roncari, Angelo J. Pyrolytic treatment of solid waste materials to form ceramic prills, P (9) 214*d*.

Powell, Paul Chemistry of the Non-Metals, B (1) 48*c*.

Powell, Robert L., and Burns, George W. Thermocouple reference tables based on the IPTS-68—reference tables in °F for thermoelements v Pt (Pt-67) (1) 33*f*.

Powers, Robert W. Beta alumina particles, P (1) 28*a*. See Mitoff, Stephan P.

Powers, Robert W., and Owens, Robert S. Beta alumina articles, P (1) 28*a*.

Powroznik, Augustyn See Pampuch, Roman ; Szpunar, Jerzy
Pozela, J. See Banis, T. ; Dobrovolskis, Z. ; Levitas, I. ; Matulionis, A.
Pozela, J., and Tolutis, R. Dependence of concentration and mobility of electrons on hydrostatic compression in heavily doped *n*-type InSb (1) 36*e*.
Pozzetti, Mario Measurement of cutting capacity of grinding wheel of a grinder, P (1) 1*e*.
Prabriputaloong, K., and Piggott, M. R. Reaction between SiO_2 and Al (1) 27*e*.
Pradoux, Denise, Blanc, Francois, Fanguin, Rene, and Raoult, Gaston Dielectric contants of quartz: I, Theory; II, Experiments (7) 180*g*.
Prager, P. R. See Majid, C. A.
Praizey, Jean P. See Cayol, Andre
Prakash, B. See Rao, C. N. R.
Pratt, P. L. See Kirk, D. L.
Prenn, E. O. See Roberts K. S.
Preobrazhenskaya, S. A. See Khoroshavin, L. B.
Preobrazhenskii, Alexandr Ya. See Vereshchagin, Leonid F.
Presby, H. M. Introducing geometrical variations in optical fibers, P (3) 61*b*; Ellipticity measurement of optical fibers (5) 106*h*. See O'Connor, Paul B.
Prescott, B. E. See Nassau, Kurt
Presley, B. J. Simple method for determining $CaCO_3$ in sediment samples (3) 80*i*.
Presnall, Dean C. See Chen, Cheng Hong
Presnov, V. A. See Trunov, A. M.
Presnyakov, Yu. P. See Ginzburg, V. M.
Preston, Ian, and Davidtz, John C. Vermiculite products produced by exfoliation, pulverization and calcination, P (9) 226*c*.
Preuss, Robert K. See Yarwood, John C.
Prewitt, C. T. See Rajamani, V. ; Sueno, Shigeho
Price, Andrea A. See Isaacs, Thelma J.
Price, Ilfryn Acetate peel techniques applied to cherts (1) 31*h*.
Price, James B. See Davidsohn, Uryon S.
Priddle, John E., Pajaczkowski, Andrzej, and Vincent, Peter I. Laminated glass windows for vehicles, P (7) 162*e*.
Prijic, Zdenko Correlation theory applied to the determination of cement mortar properties (5) 98*g*.
Prikhod'ko, A. V. See Aleksiejunas, A.
Prikhod'ko, L. I. See Gorbatyuk, V. A.
Primachenko, V. V. See Rakina, V. P. ; Stanilov, B. E.
Primak, William Postirradiation alkali migration (1) 10*h*.
Primault, Andre Device for enameling the edges of sanitary articles, P (1) 5*e*.
Priolo, Anthony See Priolo, Joan
Priolo, Joan, and Priolo, Anthony Ceramics by Coil, B (7) 189*d*.
Pritchet, W. C. See Berry, R. S.
Pritulyak, A. S. See Samsonov, G. V.
Prochazka, Svante Dense polycrystalline SiC, P (9) 213*a*.
Prod'homme, M. See Herbert, J.
Profft, U. See Rosa, J.
Prokhorov, A. S. See Velikov, L. V.
Prokhorov, V. I., and Sorokin, L. M. Inheritance of defects of oxidized Si by a growing oxide film (3) 74*a*.
Prokhorova, I. Ya., Novikova, O. V., Shabashov, Ya. F., and Frumkina, Yu. A. Carborundum-graphite molds for the lining of the channel part of high-frequency induction furnaces with an iron core (5) 116*a*.
Prokhorova, T. I. See Amosov, A. V.
Prokhorovich, A. V. See Glinchuk, K. D.
Prokhortseva, V. A., Dmitrieva, M. A., Makarov, V. A., and Abalakov, B. A. Production of hearth blocks with a phosphate binder (1) 18*f*.
Prokin, E. S., Ershova, Z. V., Chebotarev, N. T., and Ermolaev, E. E. Crystal structure of Y polonide (5) 136*i*.
Prokof'eva, E. A., and Ioff, N. U. Effect of the chemical composition and porosity of refractories on their wettability by C steel (3) 64*i*.
Prokopenko, M. I. See Pirogov, Yu. A.
Prokopovich, V. T., and Dmitriev, P. N. New construction of aerobottoms of mixing silos (1) 3*f*.
Prokudin, V. Yu. See Pirogov, Yu. A.
Proshchenko, E. G. See Polezhaev, Yu. M.
Proshina, O. P. See Suponitskii, Yu. L.
Prostakov, M. E. See Pyrina, V. K.
Protsenko, L. M., Il'yashenko, I. S., Kopylov, Yu. B., and Seskutov, Yu. V. Combustion of fuel in glass-tank furnaces with increased coverage of the glass by the flame (9) 199*c*.
Prouteau, Lucien See Delisle, Jean P.
Provost, G. See Hagemann, Ludwig ; Majdic, Aleksander
Provost, G., and LeDoussal, H. Creep of refractories in various furnace atms (5) 116*c*.
Prozorova, L. A., and Smirnov, A. I. Stationary state of paramagnetically excited spin waves in antiferromagnetic $MnCO_3$ (9) 239*g*.
Prudkina, G. A. See Murov, L. I.
Prudnikov, V. N. See Volkov, D. I.
Prudnikova, N. A. See Volkov, D. I.
Pruemmer, Rolf, and Ziegler, G. Structural changes during the explosive compaction of Al_2O_3 powders (9) 239*j*.
Prun, A. F. See Chechernikov, V. I.
Pruslin, G. Sh. See Rudakov, A. A.
Pryadko, V. M., Kryzhanovskii, I. G., Sizenko, A. S., and Vit, E. F. Use of refractory concrete for lining steel casting ladles (1) 20*d*.
Pryanishnikov, V. P. Present state of art and industry in the field of quartz glass (1) 10*i*.
Pryor, Michael J., and Gray, Thomas J. Ceramic foam filter, P (7) 167*f*.
Pshennikov, O. A. See Zhavoronkov, Yu. I.
Ptak, W., Pajak, W., and Plewa, J. Influence of temp. on Pb removal from a mixture of oxides: ZnO, Fe_2O_3, CaO, Al_2O_3, and SiO_2 containing $PbSO_4$ (3) 82*e*.
Ptak, Wieslaw See Pampuch, Roman
Ptushinskii, Yu. G. See Panchenko, O. A.
Puchkelevich, N. A., Litovskii, E. Ya., Landa, Ya. A., and Borisov, V. G. Thermophysical properties of resin binder-based refractories (1) 20*i*.
Pugach, E. A. See Voitovich, R. F.
Puig, J. See Cedo, J.
Pukaite, Clifford J. Thick-film variable resistor, P (5) 128*h*.
Pukszta, Peter, Jr. Molded fiber glass and resin structure with interlocked and bonded walls, P (3) 61*i*.
Pullen, Joseph B., and Mobley, Burton L. Alpha alumina monohydrate, P (3) 83*i*; Alpha Al_2O_3 monohydrate, P (7) 178*e*.
Punzet, Maria, and Ludwig, Udo Chemical stability of etringite (5) 98*b*.
Purdy, David L., and Williams, John F. Nb joined to alumina with Ni-Ti eutectic seal, P (1) 29*b*.
Puri, A See Teoreanu, I.
Purslow, J. H., and Hall, James E. Glass sheet stacking mechanism, P (3) 61*f*.
Pushnyakova, V. A., Kotsupalo, N. P., and Berger, A. S. Thermal decomposition of Ca aluminate hydrates (3) 93*a*.
Puskar, Victor Calcined clay pigments, P (7) 178*g*.
Puskas, L. See Hoffmann, G.
Pustil'nik, A. I. See Sedykh, T. S.
Putilin, V. G. See Fuks, Yu. M.
Puz, V. V., Chertorogov, A. V., Zyukin, S. I., and Panchenko, N. I. Automatic measurement of the moisture content of raw materials and a charge (9) 222*i*.
Puzei, I. M. See Makarov, V. A.
P'yachev, V. A. Advantages of injecting dust into the sintering zone of the kiln (1) 1*h*; Test methods for cement strength and cement quality in concrete (7) 153*e*.
P'yanykh, N. L. See Orlova, I. G.
Pyatikop, P. D. See Shapovalov, V. S.
Pyatiletov, Yu. S. See Medvedev, M. V.
Pyatkina, K. T. See Val'berg, G. S.
Pye, L. D. See Ballard, C. P.
Pyl'nik, E. V., and Guseinov, E. A. Optimization of gas-dynamics parameters in the sintering machine for the production of agloporite (9) 225*h*.
Pyrina, V. K., and Prostakov, M. E. Interactions in melts of the tetrafluoroborate of K, with the fluorides of K, La, Nd (9) 201*h*.
Pytel, Richard N., Burdett, Fred H., and Kozuch, Steve M. Tempering flat glass sheets, P (3) 62*i*.

Quarton, Michel Crystallographic and chemical data of Th double orthovanadates with an alkaline or alkaline-earth element (9) 228*g*.
Quinn, James P. See Aldcroft, Derek
Quinn, Richard M. Automatic ware handler, P (1) 13*g*.
Quist, A. S. See Bates, J. B.
Quon, H. H. See Low, N. M. P.
Qureshi, A. H. See Khan, Y.

Raab, Harry F., Jr. See Bohanan, Charles S.
Raaski E., and Bhaskar, M. C. Pozzolanic activity of pulverized fuel ash (9) 195*j*.
Rabenau, A. See Roeder, E. W. F.
Rabin'kin, A. G. See Galev, V. N.
Rabinovich, M. A. Production of siliceous mullite lightweight products (9) 211*e*. See Kabakova, I. I.
Rabinovich, M. A., Karaseva, M. D., Krigman, L. I., and Dubrovin, A. P. Production technology and some properties of a refractory of electrolytically produced corundum and a phosphate binder (1) 18*i*.
Rabkina, I. G. See Drobasheva, T. I.
Raccah, P. M. See Shin, S. H.
Raccanelli, A. See Gottardi, V. ; Locardi, B.
Rachor, Lothar, and Spener, Gerhard Fuel bodies, fuel elements, and absorber elements for high-temp reactors, P (3) 78*f*.
Radautsan, S. I., Maslyanko, R. A., Lyalikova, R. Yu., and Koloskova, V. G. Preparation and study of vitreous semiconductors based on P_2Se_3 (9) 238*b*.
Radcliffe, S. V. See Auten, T. A.
Radcliffe, Victor See Auten, Thomas A.
Radczewski, O. E. See Hamdy, S.
Rademachers, Jakob See Leitner, Lutz
Radev, D. See Levcheva, Khr.
Radford, Kenneth C. See Pope, James M.
Radhakrishna, S., and Sharma, B. D. Vapor-phase growth and electrical conductivity of pure and impurity-doped ammonium halide crystals (7) 188*h*.
Radielovic, Dragutin See Verstegen, Judicus M. P. J. ; Wanmaker, Willem L.
Radin, S. I. See Todes, O. M.
Radjy, Fariborz See Sellevold, Erik J.
Radkova, A. See Fekeldzhiev, G. ; Lyutskanov, St. ; Panova, S. ; Serbezova, R.
Radkowsky, Alvin See Bohanan, Charles S.
Rado, P. Symposium on "Development of Pottery Bodies." Hard porcelain (7) 170*a*.
Rado, T. A., and Halko, J. E. Mathematical model of the cold-pressing of ceramic powders and the relation of pressing to sintering behavior (7) 183*h*.
Radomysel'skii, I. D., and Shcherban, N. I. Impregnation of porous iron compacts with molten glass (3) 65*g*.
Radulescu, D. See Pavelescu, M.
Radzikhovskii, L. A. See Bystrikov, A. S.
Raes, Andre See Verheyen, Willy
Raes, H. D. B. See Papen, E. L. J.
Raevskaya, E. I. See Bogdanova, G. S.
Raevskii, G. V., Dyskin, E. M., Fedotov, Yu. A., and Shchipachev, G. E. Floating and welded tires for rotary kilns (1) 2*h*.
Rafn, I. See Guaker, R.
Rahrig, Donald D. See Hall, Harold R. ; Revells, Robert G.
Rai, B. P., Singh, K., and Srivastava, R. S. Temp. dependence of MOS devices (3) 75*j*.
Rai, Mohan, and Jain, V. K. Resistance of cements against aggressive action of sulfates, chlorides, and nitrates (9) 196*b*.
Raican, A. See Steflea, M.
Raichenko, T. F. See Borevskii, V. M. ; Shcheglov, S. I.
Raikher, Yu. L. See Martsenyuk, M. A.
Raikher, Yu. L., and Shliomis, M. I. Dispersion theory of the magnetic susceptibility of small ferromagnetic particles (9) 229*c*.
Raikhman, N. B. See Makarov, N. I.
Rains, Theodore C. See Dean, John A.
Raitsis, V. I. See Volkova, N. V.
Rajamani, V., Brown, Gordon E., and Prewitt, C. T. Cation ordering in Ni-Mg olivine (3) 84*g*.
Rakauskas, J. See Varaneckas, J.
Rakestraw, Thomas L. See Augustin, Eugene H.
Rakhimkulov, M. G., Ibragimov, F. Kh., Zakharov, M. S., and Sharapov, R. I. Improving Keramzit quality by using petrochemical waste additives (5) 100*f*.
Rakin, L. A. Use of material from slag chambers and workpiece scrap (1) 20*c*. See Lazovskii, V. A.
Rakina, V. P., Primachenko, V. V., Stanilov, B. E., and Shakhnovich, I. G. Lightweight kaolin products with an apparent density of 1 g/cm^3 (5) 117*f*.
Rakitskii, A. N. Stability of high-refractory materials in a Cr melt (9) 211*i*.
Rakov, E. G. See Braverman, I. B.
Rakov, V. V. See Karataev, V. V.
Ram, Michael J., Rosenthal, Arnold J., and Clarke, Charles M. High tenacity graphitic fibrous materials, P (9) 213*f*.
Ramachandran, S., Baradarajan, A., and Satyanarayana, M. Kinetic studies of mixed powder compact system between ZnO and Al_2O_3 (1) 41*d*.
Ramachandran, V., Palmer, A. W., Scibor-Rylski, M. V. T., and Widdis, F. C. Novel electrooptic diffraction deflector (1) 32*h*.
Ramage, J. C., Tidey, R. J., and Stradling, R. A. Temp. dependence of the reflectivity of *p*-type $Pb_{1-x}Sn_xTe$ (3) 92*h*.
Ramamurti, P. V. See Alam, M. Izhar
Ramamurti, V., and Rayudu, N. V. Contribution to the design of cement mills (7) 150*i*.
Ramanan, T., and Chaklader, A. C. D. Electrical resistivity of hot-pressed compacts (3) 87*b*.
Ramanna, S. See Walvekar, S. P.
Ramaswamy, S. D. See Roy, S. K.
Ramaut, J. See Vanoverschelde, A.
Ramellini, A. Electrostatic powder spray coating booth, P (5) 130*b*.
Ramenckaya, E. S. See Gilod, V. Ya.
Ramiah, K. Venkata See Babu, V. Hari
Rand, B., and Melton, I. E. Isoelectric point of the edge surface of kaolinite (9) 233*j*.
Randall, Eric N. Flame method of producing glass, P (3) 60*j*.
Randell, C. F. See Linford, R. G.
Randhawa, H. S. See Rao, C. N. R.
Rankin, D. Thomas, and Burney, G. A. Particle size of $^{238}PuO_2$ obtained by oxalate precipitation and calcination (3) 78*b*.
Rankin, D. Thomas, Smith, P. Kent, McBeath, Philip E., and Keski, James R. Production of ^{60}Co ceramic fuel forms (3) 78*c*.
Rao, B. See Mittra, S. K. ; Verma, T. N.
Rao, B. Rama See Srivastava, S. K.
Rao, C. N. R. See Gai, P. L. ; Hutchison, J. L.
Rao, C. N. R., Prakash, B., and Natarajan, M. Crystal structure transformations in inorganic nitrites, nitrates, and carbonates (1) 36*a*.
Rao, C. N. R., Randhawa, H. S., Reddy, N. V. R., and Chakravorty, D. Vibrational spectra of alkali and alkaline earth metal complexes, oxide glasses, and oxyanion salts (5) 111*d*.
Rao, C. V. S. Narayan See Ruoff, Arthur L.
Rao, K. V. Electrical conductivity and dielectric properties of NaCl, KCl, and KBr single crystals near their melting temps. (9) 231*c*. See Govinda, S.
Rao, M. R. K. See Mathur, N. N.
Rao, R. V. G. See Keer, H. V.
Rao R. V. V. Krishna See Shah, R. G.
Rao, S. R. Surface forces in flotation (9) 226*b*; Reply to discussion (9) 226*c*.
Rao, V. D. N. High-temp. low-friction ceramic coating for gas turbine regeneration seals, P (1) 5*f*.
Rao, W. Raja, and Cutler, Ivan B. Effect of calcining conditions on the dissociation rate of limestone and properties of lime (1) 2*a*.
Raoult, F., LeBot, J., and Baron, A. Hydration and hardening of concrete immediately after mixture with water (9) 195*f*.
Raoult, Gaston See Pradoux, Denise
Rapoport, A. Ya. See Kostanyan, K. A.
Rapp, Charles F. See Lee, Haynes A., Jr.
Rapp, James E. Doping semiconductor employing glass-ce-

ramic dopant, P (1) 14*e*; Glasses and glass-ceramics, P (5) 113*a*; Semiconductive glass-ceramic articles, P (5) 114*b*; Pb-Bi glasses for acousto-optic and magneto-optic devices, P (7) 162*f*; Ba aluminoborosilicate glass-ceramics for semiconductor doping, P (9) 204*e*; Glass-ceramics for semiconductor doping, P (9) 204*j*.

Rapp, James E., and Merchant, H. D. Thermal expansion of alkali halides from 70-570K (7) 188*e*.

Rapp, Karl See Luderer, Manfred

Rasch, Helmut Laws governing the formulations of Seger cone compositions (9) 223*d*.

Rashina, E. P. See Bogdanova, G. S.

Rashina, E. P., Zubei, V. A., Gerasimova, L. V., and Ivanova, V. M. Chemical transformations in two-component mixtures containing La oxide (1) 6*b*.

Rasilov, Yu. I. See Vinogradov, E. E.

Raspopin, S. P. See Desyatnik, V. N. ; Gorbunov, L. V.

Rassel, Andre See Dimanche, Francois

Rastogi, A. C. See Chopra, K. L.

Rastsvetayeva, R. K. See Kharitonov, Yu. A.

Ratcheva, T. M., and Dragieva, I. D. Epitaxial growth of Zn-Se on sapphire substrates (5) 125*h*.

Ratinen, H. Luminescence of rf-sputtered oxide films during sputtering (7) 171*h*.

Ratnam, Devineni V. Sintered rare earth-Co magnets comprising mischmetal plus Ce-free mischmetal, P (3) 77*g*.

Ratnam, V. V., and Gartia, R. K. Photostimulated glow curve method of isolating thermoluminescence peaks (1) 43*f*.

Rau, Eric See Ilardi, Joseph M.

Rau, Karlheinz Hollow cylinders of vitreous SiO_2, P (1) 14*f*; Diffusing ions into quartz glass, P (9) 204*d*.

Rau, Karlheinz, and Seiler, Karl Composite quartz glass body, P (5) 111*h*.

Rau, Peter See Knoedler, Diethelm

Rau, R. S. N. See Kamakshaiah, S.

Rauch, H. W., Sr. See Bolinger, Phillip N.

Rauen, A. Cement suspensions with water-soluble melamine resins (7) 150*c*.

Rauschenfeis, Eberhard Clinkerability of cement raw meal (7) 150*f*; Knowledge of a bloating of mineral compositions (clays) obtained with a temp.-gradient-type test furnace (9) 223*a*.

Rautenbach, Robert See Schlegel, Dietrich

Ravaglioli, A. See Fiori, C. ; Pollifrone, G. G.

Ravault, Frank E. G. Gas reactors including foam-structured ceramic body with integral internal ceramic baffles, P (1) 21*b*; Porous ceramic materials, P (1) 31*c*.

Raven, M. S., and Kirk, D. L. Discontinuous growth modes of ZnSe deposited on clean, restructured, and O-stabilized (100) Ge surfaces (1) 25*f*.

Ravich, G. B. See Frolova, A. A.

Ravinskaya, L. I. See Betikov, I. E.

Ray, Jess B., Jr., and Nourse, Billie E. Apparatus for pumping cement slurry, P (7) 153*i*.

Ray, Neil H. Oxide glasses of very low softening point: III. Study of K Pb phosphate glasses by Raman spectroscopy (5) 109*a*; Study of the coordination of B in K borophosphate glasses byRaman spectroscopy (5) 110*a*.

Ray, Neil H., Laycock, John N. C., and Robinson, William D. Borophosphate glass compositions with high water resistance and low softening point, P (5) 111*e*.

Ray, Neil H., and Robinson, William D. Glasses, P (5) 113*a*; Optical glasses, P (7) 162*e*.

Rayaboshapko, V. A. See Polnikov,V. G.

Rayudu, N. V. See Ramamurti, V.

Razdan, Pushpati See Srivastava, S. K.

Razgonov, I. I. See Bronnikov, A. D.

Razumovskaya, O. N., Devlikanova, R. U., Belyaev, I. N., and Tokmyanina, T. B. Thermogravimetric study of $Pb_2NbCo-O_6$ and $Pb_3Nb_2CoO_9$ (5) 146*e*.

Rea, Robert F. Reducing acid Pb solubility of a Pb-containing glaze or frit, P (1) 24*g*.

Read, Eileen See Mitchell, Richard

Read, R. A. See Robertson, R.

Reade, Richard F. Transparent crystalline cathodoluminescent materials, P (5) 114*g*; B-free Ag halide photochromic glasses; Cathodoluminescent glasses activated by Mn, P (9) 204*f*. See Andrus, Ronald L.

Readey, Dennis W. See Maguire, Edward A.

Ready, J. F., and Brinda, R. J. Switching speed of electrically controlled scattering PLZT (7) 172*f*.

Reamey, Herbert K., and Newman, Jerry F. Joint ramming cement, P (5) 102*e*.

Rechnitz, G. A. See Czaban, J. D.

Rechter, Harold L. See Parsons, Joseph R.

Rechtin, M. D. See Renninger, A. L.

Rechtin, M. D., and Averbach, B. L. Atomic arrangements in sputtered thin films of vitreous Se-As with 36 to 50 at.% As (1) 24*d*.

Reddi, B. V. See Narlikar, A. V.

Reddy, M. M. See Nancollas, G. H.

Reddy, N. V. R. See Rao, C. N. R.

Reddy, S. Ravindra, and Mandal, G. Production of ZrO_2 from Indian zircon: I, $CaCO_3$-$ZrSiO_4$ system (3) 83*a*; Production of ZrO_2 from Indian zircon: I, $CaCO_3$-$ZrSiO_4$ system; II, MgO-$ZrSiO_4$ and $CaCO_3$-MgO-$ZrSiO_4$ system (9) 225*j*.

Redko, V. P. See Brudnyi, V. N.

Redwanz, James O. See Kinnebrew, Gerald P.

Reed, Allan K. See Young, Robert G.

Reed, S. J. B., and Ware, N. G. Quantitative electron microprobe analysis of silicates using energy-dispersive X-ray spectrometry (9) 223*a*.

Reese, Walter J. Binder applicator for glass fiber coating, P (3) 60*a*.

Reeve, John Notes on porcelain: I, The miracle of reality (3) 71*i*.

Reeve, K. D., Napier, J. G., and Webb, C. E. Reaction of Al_2O_3-2 wt% MgO protective coatings with a BeO substrate: III. Further observations (7) 174*b*.

Reeve, Keith D. Ceramics as nuclear reactor fuels (9) 220*a*.

Reeves, C. See Hardiman, B.

Regeler, W. Bridge-type scraper for plastic raw material (5) 129*e*.

Regourd, M. Microstructure of slag cements (9) 195*e*.

Regourd, M., and Guinier, A. Crystal chemistry of the constituents of portland cement clinkers (5) 98*g*.

Regulla, Dieter Mn-activated phosphate glass for dosimetry, P (1) 14*i*.

Reh, L. Cyclone calcination of alumina—a new heat-saving technique (5) 133*h*.

Rehim, A. Abdul Beneficiation of low grade zircon concentrate (9) 225*d*.

Rehsi, S. S., and Garg, S. K. Room-temp. stabilization of high-MgO cement with fly ash (3) 53*h*.

Reichelt, K. Thickness dependence of the cluster density of epitaxial and nonepitaxial films (3) 75*f*.

Reichelt, K., and Viehweg, J. Epitaxial growth of high-vacuum evaporated EuS on mica (7) 170*j*.

Reichelt, W. See Oppermann, H.

Reid, N. G., and Stringer, C. R. Cement, P (3) 54*a*.

Reiffenstein, Erich See Mikler, Johann

Reimann, H. See Lugscheider, E.

Reimschuessel, George P. See Barnett, Irvin

Reinacher, Gerhard Corrosion of Pt-Rh 90-10 alloy in glass melts under the influence of an electric current (7) 155*c*.

Reinberg, Alan R. See Fuller, Clyde R.

Reiner, Eugene, and Weaver, James W. Simple device for improving the production of coiled glass capillary columns (3) 59*i*.

Reiners, W., and Fuerst, H. J. Thread guide, P (1) 24*i*.

Reinhart, Franz K. See Logan, Ralph A.

Reisfeld, Renata, and Boehm, L. Determination of the nephelauxetic effect in oxide glasses by Sn^{2+}, Sb^{3+}, Tl^{+}, Pb^{2+}, and Bi^{3+} ions (1) 6*i*; Optical properties of Bi in germanate, borax, and phosphate glasses (1) 10*c*.

Reisfeld, Renata, Bornstein, A., and Boehm, L. Variation of fluorescence intensities and lifetime of Sm^{3+} and Tb^{3+} with As_2O_3 content in As borax glasses (1) 13*c*.

Reisfeld, Renata, and Hormodaly, J. Optical intensities of Ho in tellurite, calibo, and phosphate glasses (7) 158*h*.

Reisman, Arnold See Berkenblit, Melvin ; Takamori, Takeshi

Rekas, Mieczyslaw See Deren, Jerzy

Rekhtman, M. Ya. Automated monitoring of the gaseous medium in tunnel kilns (1) 33*d*. See Kortnev, V. V.

Rekhtman, V. I. See But, A. B.

Reklaitis, A. See Matulionis, A.

Remenyuk, E. A. See Marek, E. V.

Remmert, J. Automated bag loading with the Autopac II (7) 149*j*.

Renaud, Robert See Zenaidi, Nezih

Rengasamy, P., Krishna Murti, G. S. R., and Sarma, V. A. K. Isomorphous substitution of Fe for Al in some soil kaolinites (5) 140*i*.

Renninger, A. L., Rechtin, M. D., and Averbach, B. L. Monte Carlo models of atomic arrangements in a As-Se glasses (1) 10*a*.

Renninger, A. L., and Uhlmann, D. R. Small-angle X-ray scattering from glassy SiO_2 (1) 45*d*.

Reppich, B. Solid solution hardening in Fe-doped MgO (7) 186*f*.

Repsas, K. See Dobrovolskis, Z.

Requena Balmaseda, J. See Garcia Verduch, A.

Res, M. A. See Fink, W. ; Koen, J. G.

Resch, Werner See Cherubim, Wolfram

Reshetnikov, N. A. See Bas'yas, I. P.

Reshetnikova, L. P. See Shaimuradov, I. B.

Reska, P. Starnkogel quarry of Steirische Montanwerke—planning, opening-up, and initial operating results (5) 101*e*.

Restall, James E. See Gostelow, Colin R.

Reszka, J. See Kwiatkowski, A.

Reuschel, Konrad See Keller, Wolfgang

Reuschel, Konrad, Kersting, Arno, and Keller, Wolfgang Hollow semiconductor bodies, P (7) 172*j*.

Reuss, John L. See May, Joan T.

Revelis, Robert G., Rahrig, Donald D., and Hagedorn, Floyd T. Glass sheet supporting, shaping, and conveying apparatus, P (1) 14*a*.

Revenko, V. I. See Lysenko, V. G.

Reyes, J. M., Segel, S. L., and Sayer, M. NMR analysis of transitions in VO_2:Al (7) 184*a*.

Reynolds, C. L., Jr. See Couchman, P. R.

Reynolds, Marilynn Ed Drahanchuk—functional and architectural ceramics (9) 193*b*; Ed Drahanchuk throws a planter (9) 193*c*.

Reynolds, Thomas G., and Nietzel, Oscar A. Positive temp. coeff. materials, P (5) 128*a*.

Reznitskii, L. A. See Kazarinova, N. G.

Rhee, S. K. Porosity-thermal conductivity correlations for ceramic materials (1) 44*a*; Theoretical base and experimental techniques for determination of surface energies of ceramic materials (1) 47*d*; Conductive glass seal assembly, P (3) 60*e*; ZrO_2-Pt interface reactions (3) 93*a*; Ceramics in automotive brake materials (9) 208*g*.

Rhiel, Ferdinand See Leyens, Gerd

Rhodes, Daniel Pottery Form, B (9) 243*d*.

Rhodes, Warren W. See Johnson, David W., Jr.

Rhodes, Warren W., and Thomson, John, Jr. Continuous hot-pressing of $Ba_2Ti_9O_{20}$ (5) 124*i*.

Rhodes, William H. See Sellers, David J.

Rhudy, John S. See Knight, Bruce L.

Ribbe, Paul H. See Phillips, Michael W.

Rice, Dale W. Crucible and heater assembly for crystal growth from a melt, P (9) 219*e*. See Herczog, Andrew

Rice, Roy W. Effects of inhomogeneous porosity on elastic properties of ceramics (1) 38*c*. See Freiman, Stephen W. ; Walker, Basil E., Jr.; Pohanka, R. C.

Rice, Roy W., and Speronello, Barry K. Effect of microstructure on rate of machining of ceramics (9) 230*b*.

Rich, C. I., and Bonnet, Juan A. Swelling chlorite in a soil of the Dominican Republic (3) 92*b*.

Rich, Dale See Sauder, Robert A.

Rich, Philip J. See Cherin, Allen H.

Rich, T. C. See Wemple, S. H.

Richard, G. M., and Demard, S. L. Mechanism of adherence between decarburized steel and direct-on white enamel (7) 154*a*.

Richards, Peter H. Tongs for suspending glass, P (3) 62*a*. See Jack, Harry R. S.

Richardson, D. W. See Ferrante, M. J. ; Ko, Hon-Chung

Richardson, Donald A. High-pressure Na-vapor lamp having low starting voltage, P (1) 14*e*.

Richardson, Neal A. See Toy, Albert

Richarz, W. See Beer, H.

Richerson, David W. See Torti, Maurice L., Jr.

Richman, D. See Green, Mino

Richman, Marc H. See Lee, M.

Richmond, Wesley Q., and Cichy, Paul Semicontinuous process for producing oxide refractory material having fine crystal structure, P (5) 122*i*.

Richter, C. E. See Schimko, R.

Richter, G. Induced direct transition photoresponse in GaP (5) 140*j*.

Richter, Liesbeth, and Bornschein, Gerhard Operating results using grinding aids in the cement industry (1) 3*g*.

Richter, W. Modern technique for stoneware pipe manufacture (9) 207*f*.

Rickard, R. Stanley See Ronzio, Richard A.

Ridge, John D. Energy—near and distant future (7) 189*f*.

Ridge, Mayhew J. See King, George A.

Ridge, Mayhew J., King, George A., and Molony, Bruce C. Variations in gypsum and the reactivity of the product of calcination (5) 102*a*.

Riebel, Charles F. See Buchanan, Carl S.

Riebling, E. F. $MBi_2Ge_2O_8$ molten glasses—a new host environment for the growth of garnets, spinels, and related phases; Growth of $BaAl_2O_4$, $SrAl_{12}O_{19}$, and $Mg_2Ga_4GeO_{10}$ crystals in molten Bi germanate glasses; Growth of $Ca_3Fe_2Ge_3O_{12}$ and $Ca_3Fe(Al,Cr)Ge_3O_{12}$ garnets in molten Bi germanate glasses; Growth of Zn aluminate and gallate spinels in molten Bi germanate glasses (3) 57*j*.

Rieck, Albert W. See Mumford, Eustace H.

Riedl, Kenneth M., and Nelson, Karl E. Flexible ferrite-particle magnets, P (1) 28*c*.

Rieke, Klaus See Lehmann, Hans

Riethausen, Guenther, and Schanz, Heinrich Automated and mechanized mfg. of standard and special shaped fireclay brick (1) 16*g*.

Rifflet, J. C., Odier, P., Anthony, A. M., and Loup, J. P. Use of thermoelectronic emission for studying point defects in refractory oxides (3) 93*g*.

Rigden, Sydney A. R., and Whiscombe, John B. Formation of metal-to-Al_2O_3 seals, P (9) 219*j*.

Rigge, Ronald J., and Carniglia, Stephen C. Alumina catalyst carriers, P (5) 121*a*.

Righini, J. See Cezairliyan, A.

Rigo, Serge, Amsel, Georges, and Croset, Michel Investigation of reactively sputtered Si_3N_4 films by complementary use of backscattering and nuclear-reaction microanalysis (9) 233*g*.

Rigterink, Merle D. Better glass fibers for optical transmission (5) 104*d*.

Rihanek, Stanislav Production of $CaSO_4$ dihydrate by reacting $(NH_4)_2SO_4$ with $Ca(OH)_2$ (3) 82*j*; Production of $CaSO_4$ by conversion of ammonium sulfate by lime hydrate: II (9) 225*h*. See Vrbecky, J.

Riley, Leon H. Depositing optical fibers, P (7) 161*i*.

Riley, V. R. See Robinsky, E. I.

Rimsaite, J. Natural alteration of mica and reactions between released ions in mineral deposits (5) 142*a*.

Rinaldi, Rose V., and Wynn, James E. Electrodes including mixed transition metal oxides, P (1) 28*i*.

Rincon Lopez, Maria See Aleixandre Ferrandis, Vicente

Rindone, Guy E. Microstructures in the glassy state (1) 9*j*. See Abdel-Latif, A. Ismail A. ; Jirmanus, Naila S. ; Kumar, Binod

Rine, James C. Reinforced bonded abrasive cup wheel, P (1) 1*f*.

Ringot, Claude See Bujas, Roko

Rink, Ryszard Probability of particle collision in counter currents of air-dust mixtures [in jet mills] (7) 152*h*.

Rink, Ryszard, and Selinger, Iwona Use of surface-active additions in jet milling of limestone (9) 197*h*.

Rion, Richard G. Heat-resistant porcelain enamel coatings containing vermiculite, P (3) 55*b*.

Ripfel, Hans C. F. See Marinos, Danny

Ristic, M. M. See Uskokovic, D.

Ristic, Momcilo M. Theoretical considerations of the kinetics and mechanism of sintering (5) 146*g*. See Uskokovic, D.

Ristow, Ulrich Fuel element exchange system, P (7) 174*h*.
Rita, R. A., and Bergeron, Clifton G. Crystallization of Pb_2SiO_4 (7) 155*g*.
Ritchie, I. G. See Simpson, L. A.
Ritchie, T. Through-the-wall brick walls (1) 15*i*.
Ritter, Elmar Sun protection glass, P (3) 62*h*.
Ritter, John E., Jr., and Cavanagh, M. S. Fatigue resistance of a Li aluminosilicate glass-ceramic (3) 57*c*.
Ritter, John E., Jr., and Moore, G. David Gas turbine regenerator seal materials (3) 54*a*.
Rittler, Hermann L. Exuded transition metal spinel films on glass-ceramic articles, P (9) 204*f*. See Beall, George H.
Ritzmann, Horst Firing or sintering fine-grain material, P (5) 130*c*.
Rizvi, S. S. H. See Saghir, Ahmad
Rizzo, A. See Manfredotti, C.
Roaldset, Elen Lanthanide distribution in clays (5) 141*i*.
Robba, William A., and Froberg, Robert W. Film of refractory material having bidirectional reinforcing properties, P (1) 28*b*.
Robbins, M. Magnetic properties of Cr chalcogenide spinels (5) 141*d*.
Robbins, W. L. See Kingery, W. D.
Roberson, Cletis L. Method and apparatus for packaging a linear glass fiber element, P (3) 61*g*; Apparatus for packaging glass fibers, P (5) 111*c*. See Langlois, Roland E.
Roberson, Donald K. Integrated semiconductor transistor structure with epitaxial contact to the buried subcollector, P (9) 219*b*.
Roberson, Glenn A., Jr., Beaver, Robert L., II, and Kelly, Edward L. Processing apparatus for thin disklike workpieces, P (3) 77*b*.
Roberts, D. E. See Wiederhorn, S. M.
Roberts E. W. See Atkinson, A.
Roberts, Gary I. Control of diffusion profiles in a thyristor by a grown oxide layer, P (3) 76*f*.
Roberts, Gordon J. Catalytic amorphous glass fibers, P (1) 13*h*; Ferrous Fe-containing phosphorus glasses, P (1) 14*d*; $FeO\text{-}K_2O\text{-}P_2O_5$ glasses as a source of micronutrient iron in soil (3) 57*d*; Micronutrient metal-containing phosphate glasses, P (5) 113*b*; Micronutrient metal-containing phosphate glasses, P (9) 205*i*.
Roberts, J. A. See Bahl, D.
Roberts K. S., and Preun, E. O. Hot spot protection for UHP electric arc furnaces—progress report (9) 210*a*.
Roberts, Richard W. See Huggins, Robert A.
Roberts, W. G. Laminated glass assemblies, P (9) 205*j*.
Robertson, J. M. See Larsen, P. K.
Robertson, R., and Read, R. A. Protective coatings and frits therefor, P (7) 154*c*.
Robertson, Robert See Denny, Patrick H.
Robin, R., Cooper, A. R., and Heuer, A. H. Application of a nondestructive single-spectrum proton activation technique to study O diffusion in ZnO (7) 179*g*.
Robin-Kandare, S. See Farhat, E.
Robinsky, E. I., Timusk, J., and Riley, V. R. Expanded natural cereal grains for lightweight building materials, P (1) 16*a*.
Robinson, Albert S. See Lawrenson, Jack
Robinson, Albert S., Loukes, D. G., and Lawrenson, Jack Flat glass, P (9) 204*g*.
Robinson, Arthur L. Semiconductors—epitaxial growth of laser diodes (1) 27*i*; Synchrotron radiation: I, A light for all seasons (9) 223*g*.
Robinson, Ian G. Vitreous coating composition, P (9) 198*h*.
Robinson, McDonald Chemical vapor desposition reactor, P (3) 76*d*.
Robinson, Morton See Pastor, Ricardo C.
Robinson, Paul H. See Goldsmith, Norman
Robinson, W. G. See Johnson, P.
Robinson, William D. See Ray, Neil H.
Rocco, William A. See Wentorf, Robert H., Jr.
Roche, Michael F. Device for determining C activity through pressure, P (7) 177*b*.
Rockwell, M. See Gray, Thomas J.
Rode, Daniel L. Isothermal diffusion theory of liquid phase epitaxy—GaAs, GaP, bubble garnet (1) 26*d*.
Rodenbaugh, D. I., and Schmidt, Beuther L. Effects of overpull on glass-melting furnaces (3) 56*f*.
Rodgol'ts, Yu. S. See Abbakumov, V. G.
Rodina, T. I., and Zaionts, R. M. Acid resistance of ceramic bodies (1) 22*d*.
Rodnyi, P. A. See Zakharov, G. M.
Rodrique, Luc, and Declerck, Francois-Dominique Microprobe study of the homogeneity in amorphous silicoaluminas of variable composition (7) 184*c*.
Roeder, E. W. F., Wilson, H. J. C., and Rabenau, A. Concerning Ruff glasses (7) 155*j*.
Roeder, Erwin See Plesslinger, Gertraud A. A.
Roehrig, H. D., Fischer, P. G., and Hecker, R. Tritium balance in high-temp. gas-cooled reactors (9) 220*g*.
Roehrig, H. D., Stoever, D., Neef, N., and Hecker, R. Solid fission product diffusion in irradiated coated particles (7) 174*d*.
Roenkov, N. D. Equilibrium between the vapor phase and the stoichiometric melt of semiconductors $A^{II}V^{IV}C_2^{V}$ (5) 139*f*.
Roeppischer, H., Elssner, W., and Boettner, H. Recharging processes of Cr ions in single crystals of ZnSe (1) 45*c*.
Roeppischer, H., Jacobs, J., and Novikov, B. V. Influence of Zn and Se heat treatment on the exciton spectra of ZnSe single crystals (1) 40*j*.
Roerig, O. See Schatz, Uwe
Roeter, B. Berlin potters (5) 97*h*.
Rofer-DePoorter, Cheryl K. See DePoorter, Gerald L.
Rog, Grzegorz See Deren, Jerzy
Rogachev, D. L. See Kuznetsov, V. Ya.
Rogacheva, E. I. See Bazakutsa, V. A.
Rogass, H. See Petretis, B.
Roger, Jean-Alain See Fonash, Stephen J.
Rogers, D. E. Measurement of heat of hydration of cements by a modified heat of solution method (7) 152*b*.
Rogers, Daniel M. See Gimple, James J.
Rogers, P. S. See Maries, A.
Rogers, P. S., and Williamson, J. Devitrified silicate glass, P (5) 112*d*.
Rogge, K. See Schimko, R.
Rogl, P., and Nowotny, H. Complex borides of U (7) 180*a*.
Rogovich, V. I. See Gavrilov, F. F.
Rogovoi, M. I. Technology of Synthetic Porous Aggegates and Ceramics, B (9) 244*f*.
Rohrer, Wesley M. See Wachter, William J.
Roig, Jean See Saurel, Jean-Marc
Roitsin, A. B. See Bugai, A. A.
Rojo, J. M. Surface physical properties of solids (1) 46*h*.
Rokhlin, N. N., Beloborodova, T. I., and Anisimova, V. I. Improvements in glassmelting processes for the production of bottles and jars (1) 8*i*.
Roland, George W., Feichtner, John D., and Gottlieb, Milton Tl_3AsS_4 crystals and acousto-optical systems, P (3) 62*a*.
Rolfe, Nicholas See Birchall, James D.
Rollins, Jack D. See Dufrane, Kenneth H.
Rollmann, Louis D. Zeolite, P (5) 135*d*; Crystalline aluminosilicate zeolites, P (7) 178*h*.
Rolls, R. See Taylor, R.
Rolston, John A. See Gray, Richard A.
Roman, O. V. See Dubrovskaya, G. N.
Romanchuk, V. E. See Morozenskii, V. L.
Romanenko, D. A. See Mal'tsev, V. T.
Romanenko, L. I. See Solovushkova, G. E.
Romano, Roberto See Stone, Louis E.
Romanov, V. P. See Plotkin, S. S.
Romanovich, M. E. See Kopinets, I. F.
Romanowski, R. F. See Jones, Robert A.
Romanowski, Ryszard See Kosacka, Elzbieta
Romanski, Andrzej A. F., Brookes, Derek J., Smith, Anthony, and Markham, Harry Hard TiO_2, P (5) 134*h*.
Romashina, M. N. See Sergeeva, K. A.
Romberg, Hendrik See Buurman, Herman
Romeo, N. See Paorici, C.
Romovacek, Richard G. Isotropic C, P (9) 213*h*.
Romwalter, Alfred See Neubauer, Iren
Roncari, Angelo J. See Powell, Orlo A., Jr.
Ronchi, C. Nature of surface fission tracks in UO_2 (7) 173*i*. See Matzke, Hj.
Ronneau, Claude See Desaedeleer, Georges
Ronzio, Richard A. See Vertes, Michael A.
Ronzio, Richard A., Ziegler, Robert C., Oberg, Fred N., and Rickard, R. Stanley MoO purification process, P (9) 226*j*.
Roorda, H. J. See Kuehnel, R. A.
Ropers, Johann See Keller, Wolfgang
Rosa, J., and Profft, U. Experimental research program for the derivation of a mathematical model of the clinker burning process in the rotary kiln (5) 99*c*.
Rosa, Josef, and Petr, Vlastimil Apparatus for the manufacture of powdered lime, P (5) 102*d*.
Rosai, Livio See Della Porta, Paolo
Rosback, Donald H. Zeolitic adsorbent for xylene separation, P (9) 226*f*.
Rose, D. H. See Hastings, I. J.
Rose, H. E. See Moore, G. S. M.
Rose, M. E., Smith, R. J. A., Howlett, D. J., and Taylor, Derek Simple automatic thermal expansion machine (7) 176*d*.
Rose, M. E., and Wilshaw, T. R. Technique for measuring the scratch resistance of ceramic glazes (7) 176*f*.
Rosebaum, H. S. Treatise on Materials Science and Technology, Vol. 7: Microstructures of Irradiated Materials, B (9) 244*c*.
Rosen, Bernard W. See Motta, Salvatore
Rosenberg, H. M. See Garrett, K. W.
Rosenblatt, Gordon Semiconducting glaze composition, P (9) 216*e*. See Byckalo, William
Rosenthal, Arnold J. See Ram, Michael J.
Rosenthal, Rachel Coiled sculpture (7) 149*j*.
Roshal, R. M. See Zargarova, M. I.
Rosin, H. Method and results of a dislocation structure analysis of Ga(As,P) by etching (5) 142*c*.
Rosinski, Klaus D., and Schroer, John W. Analysis of treated glass fibers, P (1) 13*j*.
Rosinski, W. See Barcz, A. ; Igras, E.
Roslov, S. A., Belaya, A. D., and Zemskov, V. S. Microhardness of Bi-Sb solid solution single crystals (5) 142*e*.
Rosolowski, J. H. See Greskovich, C.
Ross, Edward A. See Banyas, John D.
Ross, G. J. Experimental alteration of chlorites into vermiculites by chemical oxidation (9) 231*j*.
Rosseinsky, D. R., and Malpas, R. E. Conductivity and rectification in metal halide intervalence mixtures (9) 228*b*.
Rossini, Angel R., Varela, Juan C., and Menucci, Luis A. Refractory clays (1) 34*c*.
Rossmassler, Stephen A. (Editor) Critical evaluation of data in the physical sciences—a status report on the National Standard Reference Data System (5) 147*a*.
Rossomakha, M. I. See Fuks, Yu. M.
Roszczynialski, Wojciech See Grzymek, Jerzy
Rotenfel'd, M. M. See Avgustinik, A. I.
Roth, C. B. See Tullock, R. J.
Roth, M., and Zarzycki, J. Neutron small-angle scattering study of $SiO_2\text{-}Na_2O$ glasses (1) 10*g*.
Roth, Walter L. See Greskovich, Charles D.
Rothenberg, G. B. Glass Technology—Recent Developments, B (7) 190*f*.
Rothenberg, Howard S. Electroformed hermetic glass-metal seal, P (5) 112*g*.
Rother, F. Bodies of various shapes from inorganic powders, P (7) 170*e*.
Rotnitskii, K. M. Production of agloporite gravel from the ash of heat and power plants (9) 196*b*.
Roturier, J. See Saboya, B.
Rouanet, Alain See Coutures, Jean-Pierre ; Yoshimura, Masahiro
Roue, F. V. See Higgins, J. K.
Rough, Robert R. Method for rapidly melting and refining glass, P (7) 162*b*.
Routil, R. J. See Gray, Thomas J.
Routschka, G., Hagemann, L., and Majdic, A. Hot strength of aluminosilicate refractories as a function of mineralogical composition and thermal history (9) 210*a*.
Rowcliffe, D. H. See Edington, J. W.
Rowe, D. M. Electrical properties of hot-pressed Ge-Si-B alloys (1) 25*d*.
Rowe, George E. Neck ring cartridge for glassware machine, P (5) 113*c*.
Rowse, J. B. See Jepson, W. B.
Rowse, Robert A., and Lakhani, Hussain G. Cutoff wheels of fused $Al_2O_3\text{-}ZrO_2$ alloy abrasive grains, P (3) 49*d*.
Roy, Della M. See Eysel, Walter ; Gouda, George R.
Roy, K. L. See Mitra, N. K.
Roy, L. C. See Mitra, S. K.
Roy, Prodyot, Simpson, James L., and Aitken, Edward A. Apparatus for fabricating composite ceramic members, P (3) 54*j*.
Roy, Rustum New methods of making special ceramic materials (5) 134*e*. See Marinkovic, Zivka ; White, William B.
Roy, S. K., and Ramaswamy, S. D. Thermodynamics of claywater system (3) 71*i*.
Royak, S. M. Plugging cements (5) 101*b*.
Royle, J. D. Changing pattern of raw material supplies—Fluxes (7) 168*f*.
Rozanov, I. G. See Kasimov, G. G.
Rozanowski, Boleslaw See Nadachowski, Franciszek
Rozanowski, Boleslaw, Lipinski, Tadeusz, and Serkowski, Stanislaw Adherence of cement clinker to the surface of impregnated refractory materials (7) 149*h*.
Rozdin, I. A. See Plotkin, S. S.
Rozenberg, R. G. See Stukalina, K. A.
Rozenberg, Vladimir L. See Popov, Alexandr N.
Rozental, O. M. Polarization factors in model and silicate systems of hardening (9) 195*i*.
Rozental, O. M., and Efremov, I. F. Characteristics of interphase transition at first stages of formation of structure of cement stone (9) 194*c*.
Rozental, O. M., Sychev, M. M., and Podkin, Yu. G. Electrical properties of cement pastes (9) 194*i*.
Rozentsveig, S. M., Levitskaya, Yu. F., Kholodok, N. I., and Tsyngauz, I. E. Effect of particle size of alumina on the properties of high-voltage porcelain (1) 23*c*.
Rozhanskii, A. I. See Myasnikov, A. A.
Rozhanskii, A. I., and Velikhodnyii, V. G. Radiation method for drying glass fibers (9) 202*i*.
Rozhavskii, A. S. See Shekhter, R. I.
Rozhko, A. Kh. See Vertsimakha, Ya. I.
Rozov, G. L. Automation in the composition control of silicate masses for brick production (9) 206*d*.
Rubin, Jack A., and Kolom, Aaron Ancient material serves technology's newest needs (9) 242*h*.
Rubinshtein, O. V. See Toropov, A. N.
Rublenetskii, R. L. See Zlatokrylov, R. M.
Rubleskii, I. P. See Bekker, L. Kh.
Rubtsov, A. N. See Adamovskii, A. A.
Rubtsov, V. A. See Novikov, G. V.
Rucha, Ulrich See Sandmann, Herbert
Rud, R. F. See Tsigler, V. D. ; Usatikov, I. F.
Rudakov, A. A., and Pruslin, G. Sh. Change in the ratio of finished product body to glass drop (1) 5*j*.
Rudakova, S. E. See Aslanova, M. S.
Rudashevskii, E. G. See Velikov, L. V.
Rudd, John D. See Alderson, John V.
Rudenko, I. F. See Pashchenko, A. A.
Rudenko, L. V. See Vargin, V. V.
Ruderer, Clifford G. Direct-on ceramic coating of C-rich iron, P (3) 55*a*.
Rudnev, N. A. See Melikhov, I. V.
Rudnick, Alfred See Maringer, Robert E.
Rudyak, I. N. See Karaulov, A. G.
Ruede, K. H. Powerful apron conveyor for feeding the crusher in a cement plant at Wurenlingen-Siggenthal, Switzerland (5) 101*d*.
Ruffler, D. See Baumard, J. J.
Rumyantsev, B. M. See Gribovskii, M. O.
Rumyantsev, G. A. See Mal'gin, A. D.
Runge, H. Modification of the theory of threshold voltage shift of MOS transistors by ion implantation (9) 218*c*.
Ruoff, Arthur L., and Rao, C. V. S. Narayan Effect of impurities on the high-temp. creep of LiF (3) 86*h*.
Ruoff, Werner H. Fiber-reinforced hot-pressing molds, P (3) 69*j*.
Rupaal, Ajit S. See Garnier, John E.

Rusch, Gordon K. Period meter for reactors, P (5) 129*a*.
Rusche, Christian See Herrnring, Jorg
Ruscoe, William Sculpture for the Potter (3) 96*i*.
Rusev, K., Angelov, St., and Denev, N. Refractory clays from the Chepurlyantsi and Radolovtsi deposits in the Razboische region (5) 134*j*.
Rusiecka, Magdalena See Haber, Jerzy
Rusinik, V. M. See Kryuchenkov, D. A.
Ruska, J. See Krebs, Heinz
Ruske, E. Reciprocity failure of photoinduced edge shift in amorphous As_2S_3 (3) 91*h*.
Russak, Michael A., Tobin, Albert, and Feldman, Carl Development and characterization of a closed-ore insulation material (7) 164*b*.
Russell, G. J. See Caswell, B. G.
Russu, R., and Gheorghe, Gabriela Granulation of molecular sieves: III, Bentonite-alumina mixture as a binder (1) 34*g*.
Rustum, Roy See Neurgonkar, R. R.
Rusu, Ecaterina, Muntean, Marcela, and Teodorescu, Sanda Enamel frits for covering Al (9) 198*g*.
Rutman, D. S. See Khoroshavin, L. B.
Rutman, D. S., Permikina, N. M., Zholobova, L. S., and Kudryavtseva, T. N. Manufacture of actively sintered alumina and corundum ceramics from it (5) 118*a*.
Ryabchenko, S. M. See Grankin, V. L. ; Lozenko, A. F.
Ryabov, A. N. See Smirnyi, V. V.
Ryabov, E. N. See Kuz'menko, A. S.
Ryabtsev, K. I. See Bakunov, V. S.
Rybalchenko, L. F. See Yanson, I. K.
Rybalkin, P. T. See Galdina, N. M. ; Verlotskii, A. A.
Rybicki, Kazimierz See Gutowski, Ryszard
Rybka, V., Krejci, P., and Sevcik, Z. Current transmission in Ge-GaAs *pn* heterojunctions (3) 85*f*; Switching properties of vacuum-deposited Ge-GaAs *pn* heterojunctions (5) 126*b*.
Rychkov, V. P., Volgin, B. P., and Khainsenov, A. P. Effect of free radicals on the electrostatic purification of gases in refractory production (9) 209*f*.
Ryden, William D. See Labuda, Edward F.
Ryder, G. A. See Evans, T. G.
Rykov, L. V. See Bekker, L. Kh.
Ryshchenko, M. I. See Saltevskaya, L. M.
Ryskin, G. Ya. See Baikov, Yu. M.
Ryss, M. A., Vasil'ev, V. I., Savchenko, P. M., and Zaldat, G. I. Refractory materials for lining the crown of closed ferroalloy furnaces (1) 19*e*.
Ryss, S. M., and Ivanov, V. V. Automatic control of the moisture content of ceramic molding powders (9) 214*c*.
Ryssel, H., and Kranz, H. Influence of quenching on the electrical activation of implanted As in Si (1) 40*i*.
Ryttnauer, Emil See Barta, Cestmir
Ryugo, Noboru, Inaniwa, Keizo, and Sugiyama, Akira Process for depositing deposition agent on surface of semiconductor substrates, P (7) 173*e*.
Ryuzan, O. See Ihara, Masayoshi

Saalfeld, H. X-ray investigation of single crystals of β-Ca_2SiO_4 (larnite) at high temps. (3) 93*j*; Crystallographic investigations of the compound $Ca_7MgSi_4O_{16}$ (phase T) in the system Ca_2SiO_4-$Ca_3Mg(SiO_4)_2$ (5) 136*j*.
Saboya, B., Chemin, J. F., Roturier, J., and Barriere, A. Simultaneous observation of Rutherford scattering and (α, X) reactions in ALF_3 and MgF_2 layers and correlations with their electrical properties (1) 45*j*.
Sachkov, V. P. See Krivilev, P. A.
Sack, Werner See Kiefer, Werner
Sadoski, Tadius T. See Menelly, Richard A.
Saeki, Osamu, Tamura, Setsuo, Kadono, Atsuro, and Iemura, Iwao Repair of ceramic burner for M & P hot stove system (7) 177*e*.
Saenko, E. P. See Pirogov, A. A.
Saenko, E. P., Gaodu, A. N., Pirogov, A. A., and Martynenko, V. V. Production of refractory heat-insulating products from kaolin wool (3) 67*e*.
Safa, M., Midgley, D., and Tanner, B. K. Observation of antiferromagnetic domins in $KNiF_3$ by X-ray topography (3) 90*d*.
Safarov, V. I. See Berkovits, V. L. ; Dyakonov, M. I.
Safdar, M., Frischat, G. H., and Hennicke, Hans W. Corrosion of alumina by molten V_2O_5 (5) 116*h*.
Safonov, I. A. See Sorochkin, M. A.
Safonov, V. V., Kuklina, N. F., and Korshunov, B. G. System $Cs^+,K^+,Rb^+,Te^{4+}||I^-$ (1) 46*e*.
Safonov, Yu. S. See Galaev, A. A.
Safronova, I. P. See Degtyareva, E. V. ; Kainarskii, I. S.
Safronova, I. P., Degtyareva, E. V., and Kainarskii, I. S. Effect of additives on the strengthening of SiC castings (3) 64*g*; Rheological and technological properties of SiC suspensions and castings from them with Si and clay additives (3) 68*g*.
Sagalevich, Yu. D. Experimental production of perforated packings (1) 17*d*.
Sagalevich, Yu. D., and Larenkov, A. P. Evaluating the quality of fired Dinas brick (1) 17*b*.
Sagalov, Z. V., and Polyakova, E. A. Refractories terminology in the Comecon member countries (3) 67*g*.
Sagara, Hiroji See Izumitani, Tetsuro
Sagatov, M. A. See Seregin, P. P.
Saghir, Ahmad, and Rizvi, S. S. H. Identification of minerals of kaolinite subgroup using X-ray powder method (5) 131*e*.
Saha, Prasenjit See Chatterjee, Minoti
Sahara, Ryotaro See Sugai, Mikio
Saida, Hiroji, Ono, Yuichi, Nomura, Masayoshi, and Tamura, Masao Semiconductor device having a buried epitaxial layer, P (5) 128*c*.
Saiello, S. See Buri, A.
Saifi, Mansoor A., and Borutta, Richard Optimization of pulsed CO_2 laser parameters for Al_2O_3 scribing (3) 74*j*.
Sailer, E., Konak, C., Unruh, H. G., and Fouskova, A. Brillouin scattering in $(NH_4)_2Cd_2(SO_4)_3$ and $Tl_2Cd_2(SO_4)_3$ (5) 135*d*.
Saito, Hachiro See Kuramoto, Naoya
Saito, Hajime See Takahashi, Junichi ; Takashima, Hiroo
Saito, Kiyoshi See Moriguchi, Sanseki
Saito, Kiyoshi, and Shindo, Kazuo Conversion of $(NH_4)_2SO_4$ to gypsum and monoammonium phosphate (7) 150*j*.
Saito, Michio, and Matsumoto, Osamu Formaton of Nb carbonitride from Nb_2O_5 and graphite in a plasma arc (5) 139*i*.
Saito, Shinroku See Suzuki, Takeyuki
Saizonou, S. H., Clastres, P., and Cubaud, J. C. Morphological and mechanical characteristics of some lightweight French aggregates (5) 100*c*.
Sajo, Istvanne Fluorescent X-ray spectrometric analysis of bauxites (5) 131*j*.
Sakada, Yasuhira See Momose, Keigo
Sakaeda, Osao See Fujihara, Masamichi
Sakaeda, Osao, and Imai, Kiyokata Hardened products obtained by carbonation of serpentine containing $MgO.H_2O$ (7) 151*f*.
Sakagami, Takeo See Niwa, Shohei
Sakaguchi, Seiichiro Emergency cooling apparatus for reactors, P (1) 30*f*.
Sakai, H. See Isard, J. O.
Sakai, Usaburo See Yamamoto, Nobuo
Sakai, Yoshihiro See Kato, Kazuo
Sakaino, Teruo See Yamane, Masayuki
Sakaino, Teruo, Yamane, Masayuki, and Makishima, A. Studies of glasses by small-angle X-ray scattering and of a computer analysis of the Guinier plots (1) 11*i*.
Sakalas, A. Analysis of the preparation conditions of undoped *p*-CdSe, *p*-CdS, *p*-ZnSe, and *n*-ZnTe single crystals (1) 35*e*. See Baubinas, R.
Sakalauskas, K., and Garska, E. Effect of ultrasonic waves on the effective current relaxation time in a *pn* junction base (1) 25*i*.
Sakamoto, Chiaki See Setoguchi, Masahiro
Sakamoto, Chiaki, and Honjyo, Takako Flux growth of Pb titanozirconate single crystal using Ti and Zr fluorides of K and PbO as starting materials (5) 139*f*.
Sakamoto, Motoyoshi See Harigaya, Hiroshi
Sakamoto, Setsuo See Yoshida, Fumio
Sakamoto, Takashi, Tsuji, Nobuhiro, and Kawagoe, Hiroto MIS-type semiconductor device having high operating voltage, P (3) 76*g*.
Sakamura, Hiroyasu, and Imaoka, Minoru Internal friction in Na_2O-H_2O-P_2O_5 glasses (3) 57*e*.
Sakharov, E. N. See Kyuin, D. K.
Sakharova, T. V. See Makarov, V. A.
Sakhno, K. See Levcheva, Khr.
Sakhnovskaya, B. S. Semiconducting glaze (3) 71*c*.
Sakka, Sumio See Kamiya, Kanichi ; Matusita, Kazumasa
Saksena, M. D. See Vengsarkar, B. R.
Sakuma, Kazuhito See Ohwada, Kuniki
Sakurai, Shigeo See Tani, Tetsuro
Sala, E. Device for the automatic shaping of ceramic cups, dishes, and the like, P (9) 216*a*.
Salahuddin, J. See Lenczner, D. ; Wyatt, K.
Salaj, A. See Bajza, A.
Saleh, S. A. See Eissa, N. A.
Salge, H. Solubility of mineral mill additions during firing of enamel (1) 4*f*.
Salmer, G. See Vanoverschelde, A.
Salmon, Roger, Parent, Claude, Berrada, Abdellatif, and Brochu, Robert New orthophosphates and orthovanadates of β-K_2SO_4 structure (9) 235*f*.
Sal'nikov, K. Ya. See Galushkin, A. P.
Salnikov, V. D. See Demyanov, V. V.
Salonets, G. I. See Pechkovskii, V. V.
Salova, T. P. See Epel'baum, M. B.
Saltevskaya, L. M., Livson, Z. A., Ryshchenko, M. I., and Levitskii, V. K. Synthesis of wollastonite and its use in ceramic bodies (1) 23*h*.
Salvadore, Eugene A., and Zimmerman, Paul J. Mold powder composition and method for continuously casting employing it, P (5) 122*d*.
Salvagno, L. Internal pressure strength of glass containers—statistical study (5) 107*j*.
Samakhotina, N. K. See Dovletov, K.
Samanta, Sudarsan C., and Hummel, F. A. Phase equilibria in the system CaO-PbO-SiO_2 (5) 143*a*; Phase equilibria in the system SrO-PbO-SiO_2 (7) 184*g*.
Samaras, D., Collomb, A., Joubert, Jean C., and Bertaut, E. Felix Neutron diffraction study of the magnetic structure of the compound $SrTb_2Fe_2O_7$ (7) 184*f*.
Samoilenko, V. G., and Pereselentseva, L. N. Deposition of Zr carbide coatings acting as diffusion barriers in composites consisting of a metallic matrix and refractory metal fibers (5) 103*c*.
Samoilov, Oleg B. See Derevyankin, Nikolai E.
Samoilova, R. N. See Kutolin, S. A.
Samorukov, B. E. See Zykov, A. M.
Samouel, Maurice, and DeKozak, Ariel Ternary system NaF-ZnF_2-CrF_3. Partial system Na_3CrF_6-NaF-$NaZnF_3$ (7) 188*c*.
Samsonov, G. V., Bogomol, I. V., Okhremchuk, L. N., and Podchernyaeva, I. A. Thermionic emission from cermets made of refractory carbides (7) 166*b*.
Samsonov, G. V., Burykina, A. L., Medvedeva, O. A., and Kosteruk, V. P. Reactions of BN with transition metals and their borides and nitrides (1) 45*a*.
Samsonov, G. V., Fomenko, V. S., Podchernyaeva, I. A., and Okhremchuk, L. N. Thermionic emission properties of refractory compounds and materials based on them—a review (1) 47*b*.
Samsonov, G. V., and Gil'man, I. Ya. Electronic structure and physical properties of the oxides of the lanthanides—a review (3) 87*g*.
Samsonov, G. V., Kalinina, N. G., Neshpor, V. S., and Okhremchuk, L. N. Thermionic emission characteristics of pure and Y-containing Zr carbide (7) 188*g*.
Samsonov, G. V., and Kushtalova, I. P. Deformation and recrystallization of refractory compounds (3) 85*g*.
Samsonov, G. V., Morozov, V. V., Kunitskii, Yu. A., and Vasil'ev, M. A. Cathode sputtering of the secondary ion emission from refractory borides (3) 72*d*.
Samsonov, G. V., Panasyuk, A. D., Bespyatyi, V. A., and Belomyl'tsev, A. I. Protective coatings for SiC fibers in contact with Ni alloys (3) 67*h*.
Samsonov, G. V., Shulishova, O. I., and Shcherbak, I. A. Effects of conditions of preparation on the superconducting properties of NbN (3) 73*e*.
Samsonov, G. V., Stepanchuk, A. N., Pritulyak, A. S., and Shiyuko, V. Ya. Composition dependence of the abrasive properties of fused Ti and Zr carbide powders (1) 16*c*.
Samsonov, G. V., and Yakovlev, V. I. Influence of Fe group additives on Nb sintering (9) 233*g*.
Sanatulin, A. Z. See Yudin, N. A.
Sanchez Camazano, M., and Vincente Hernandez, M. A. Physicochemical study of ceramic clays from Zamora Province: I, Tertiary and Quaternary deposits on the left bank of the Duero River basin (1) 43*h*.
Sandell, Thorsten W. See Markoo, Eric L.
Sanders, David M., Blackburn, Douglas H., and Haller, Wolfgang K. High-temp. transpiration apparatus for study of viscous, incongruently vaporizing glass melts (9) 200*j*.
Sanders, David M., and Schaefer, Helmut A. Reactive vaporization of soda-lime-silica glass melts (5) 109*n*.
Sandford, Jim What's happening in temp. monitoring and control (9) 223*j*.
Sandler, R. A. See Kuz'menko, A. S.
Sandmann, Herbert See Dietze, Wolfgang
Sandmann, Herbert, Dietze, Wolfgang, Rucha, Ulrich, and Barowski, Gerhard Reaction device for pyrolytic deposition of semiconductor material, P (3) 77*d*.
Sandoe, J. N. See Parke, Sydney
Sandoval del Rio, F. See Aleixandre Ferrandis, Vicente
Sandrolini, F., and Palmonari, C. Role of Fe oxides in the bloating of vitrified ceramic materials (7) 169*j*.
Sandulova, A. V., Shcheveleva, G. M., and Ashcheulov, Yu. B. Nature of branchings and bendings of thread-like Si crystals (5) 142*c*.
Sangeorzan, Ivona See Cerchez, Mihai
Sanghavi, J. R. See Vyas, M. H.
Sano, Shiro See Takagi, Hiroyoshi
Sanou, Muneharu See Suzuki, Suguru
Sansburry, James D. See Luce, Robert L.
Sansom, Keith G. See Neumann, Barbara S.
Sansome, Dennis H. See Biddell, David C.
Sant, B. R. See Thakur, R. S.
Santo, Eugenio E. Burner ignition system, P (7) 177*i*.
Sanyal, A. S., and Mukerji, J. Fixation of high level nuclear waste in glass for ultimate disposal: II, Development of vitreous matrices for containment of CIRUS, Tarapur, and Ranapratapsagar nuclear fuel reprocessing wastes (7) 173*f*.
Sapozhnikova, E. Ya. See Kriger, E. M.
Sapozhnikova, T. V. See Serebryakova, A. V.
Saraeva, T. M. See Strakhov, V. I.
Sarai, Hiromi See Hirano, Toru ; Kato, Shuzo
Sarapulova, L. I. See Strelov, K. K.
Sarbei, O. G. See Bondar, V. M.
Sarkar, A. See Srinivasan, G. R.
Sarkar, B. K. Effect of ball milling on Al_2O_3 powders (9) 221*b*.
Sarkisov, P. D. See Pavlushkin, N. M.
Sarkisov, S. E. See Belabaev, K. G.
Sarma, V. A. K. See Rengasamy, P.
Sarres, H. W. See Fiedler, E.
Sasaki, Hiromu, Tsubouchi, K., Chubachi, N., and Mikoshiba, N. Photoelastic effect in piezoelectric semiconductor—ZnO (9) 218*e*.
Sasaki, Kyoichi See Isohata, Susumu
Sasaki, Takeshi See Suzuki, Kensuke
Sasaki, Tatsuo See Kano, Saburo
Sasaki, Yoshinobu See Mimura, Shigeru
Sasamoto, Tadashi, Lee, Hong-Lim, and Sata, Toshiyuki Effects of porosity on vacuum vaporization of MgO (1) 38*d*.
Sasashima, Yasushi See Tomita, Yoshimori
Sassa, V. S. See Murov, L. I.
Sassa, V. S., and Yashkov, V. M. Effect of temp. on stability of quartzite lining of crucible electric furnaces (3) 65*b*.
Sastri, S. R. S. See Narasimhan, K. S.
Sata, Toshiyuki See Sasamoto, Tadashi
Satarin, Vladimir I. See Gribko, V. F.; Kogan, N. P.
Satas, A. See Petretis, B.
Satava, V., and Komrska, J. Gypsum and SiO_2 hydrosol—a new binding material (5) 99*i*.
Satava, Vladimir, and Veprek, Otokar Study of hydrothermal reactions by DTA: I, Hydrothermal reactions of clinker minerals (3) 53*c*; Study of hydrothermal reactions by DTA: II, reactions of Ca aluminates with gypsum (5) 101*j*.

Sathianandan, K. See Albin, S.
Sato, H., Shinozaki, S., and Yessik, M. Direct observation and indentification of long-period structures of SiC by TEM (9) 229*j*.
Sato, Hiroaki See Shibayama, Kimio
Sato, Katsunobu See Hirano, Toru
Sato, Katsunobu, Hirano, Toru, and Maruyama, Toshihiko Improvement of the physical and mechanical properties of fired clay bodies by polystyrene impregnation (7) 165*i*.
Sato, Masao See Toide, Takashi
Sato, Masataka See Nishimura, Tatsuo
Sato, Seichi See Yokokawa, Toshio
Sato, Toshihiko See Yano, Soichi
Sato, Yasuo, Uchida, Masao, Ishibashi, Yoshio, and Araki, Toru Chip-type planar Schottky barrier diodes fabricated from selectively grown GaAs (1) 24*i*.
Sattarova, A. S. See Zubakov, S. M.
Sattler, Ferdinand Raw materials containing B_2O_3 for the glass industry (9) 203*a*.
Satyanarayana, M. See Ramachandran, S.
Sauder, Robert A., Kendrick, Gary R., and Rich, Dale Ceramic fiber insulation module, P (7) 177*i*.
Sauer, John A. See Sun, Pore-Feng
Sauman, Zdenek Formation conditions and the nature of binding phases in autoclave-hardened building materials (5) 99*f*.
Saunders, G. A. See Chung, D. Y. ; Farley, J. M.
Saunders, I. J. See Kulshreshtha, Arun P.
Saurel, Jean-Marc, Candille, Marcel, and Roig, Jean Method of controlling the thickness of multidielectric layers using monochromatic light—prismatic modulator (1) 26*h*.
Savchenko, E. P. See Isupova, E. N.
Savchenko, P. M. See Ryss, M. A.
Savel'ev, B. A., and Krenev, V. A. Reaction of BBr_3 with elemental B (1) 44*h*.
Savel'ev, V. N., Finkel'shtein, L. Z., Dreval, I. V., and Tigonen, G. V. Hardening of quartz glasses (9) 200*g*.
Savel'eva, M. V., Shakhno, I. V., Plyushchev, V. E., and Minaev, V. S. Synthesis, regions of formation, and some properties of phosphate glasses containing Cr (5) 110*d*.
Savina, L. A. See Petrenko, Yu. M.
Savitskii, D. I. See Onishchenko, P. V.
Savitskii, E. M. See Belov, K. P.
Savory, B. See Fray, D. J.
Savos'kina, A. I. See Limar, T. F.
Savrov, V. N. See Nagornyi, A. P.
Savvateeva, L. M. See Kvyatkovskaya, K. K.
Savvina, Yu. A., and Kurbatova, I. I. Influence of Na sulfate on structure and strength of cement stone (9) 195*h*.
Savvinov, A. M. See Zaleskii, A. V.
Saw, C. B. Composite action of masonry walls on beams (5) 114*e*.
Sawa, Yuji See Yoshikawa, Shinsuke
Sawada, Hajime See Yoshihara, Tetsuya
Sawai, Joe Y. Glass handling tongs, P (3) 61*e*.
Sawchuk, Loris G. See Araujo, Roger J.
Sawers, James R., Jr. See Johnson, Donald R.
Sawyer, Baldwin Color sorting of irradiated materials and a calibrated color comparison array, P (5) 132*a*.
Sayer, M. Thermionic emitter of La Sr vanadates, P (7) 173*j*. See Reyes, J. M.
Sayin, Mahmut, and Jackson, M. L. SEM of cherts in relation to the O isotopic variation of soil quartz (7) 186*g*.
Scardefield, J. E. See Foster, L. M.
Scarinci, G. See Forniasiero, M. ; Locardi, B.
Schaar, Lothar Forming station for a machine for forming hollow articles of vitreous material, P (7) 161*c*.
Schabert, Hans P. See Keller, Wolfgang
Schach, A. Bott elements. Perforated bricks and Poroton lightweight brick—wall components (9) 206*e*.
Schachner, H. See Funk, R.
Schaefer, Helmut A. See Sanders, David M.
Schaefer, Herbert See Geck, Hans-Guenter
Schaefer, Horst Glass-forming mixture with B as the doping material for producing conductivity zones in semiconductor bodies by means of diffusion, P (5) 127*a*.
Schaefer, Seth C. Free energies of formation of ferrous and ferric fluoride by emf measurements (5) 139*j*.
Schaefer, W. New lightweight [heat] insulating materials and their use in the ceramic industry (5) 118*d*.
Schaefer, Wolfgang, and Will, Georg Neutron diffraction investigation of antiferromagnetic Ni-I boracite (1) 42*j*.
Schaeffer, Beata See Oel, Heribert J.
Schaffer, Stephen P. Pd alloy for ceramic bonding, P (5) 124*a*.
Schaller, Arnold L. Colored glass compositions, P (3) 60*d*.
Schaller, W. See Wurlitzer, M.
Schanz, Heinrich See Riethausen, Guenther
Schara, M. See Cevc, P.
Scharbach, H. Glassy and crystallized enamels for chemical ware (1) 4*a*.
Scharmann, A. See Kiessling, J. ; Kriegseis, W.
Schartau, W., and Hoppe, R. Rb_2TiO_3, a new oxytitanate with coordination number 4 (9) 238*h*.
Scharwaechter, Dieter Calculation of ceramic batches and optimization of batch costs using computers (9) 242*i*.
Schatz, Uwe See Weidemueller, Christian
Schatz, Uwe, and Buhs, Martin New construction of rolling-mill hearths with nonbasic materials (7) 165*c*.
Schatz, Uwe, Roerig, O., Dott, M., and Liebl, J. Recent knowledge concerning the refractory lining of outlet zones, inlet bends to planetary coolers, and cooler tubes of rotary cement kilns (5) 101*b*.
Scheel, H. J. See Elwell, D.
Scheel, Hans J., and Elwell, D. Surface features on flux-grown refractory oxide crystals (1) 46*g*.
Scheel, Ruediger Equilibria in the system CaO-MgO-FeO_n in the presence of metallic iron (7) 182*c*.
Scheer, L., Torok, Katalin, and Pentek, Laszlo, Jr. Evaluation of pilot-plant experiments with Maveklin-KL grinding aid (5) 99*a*.
Scheffel, Norman B. See Lamar, Richard S.
Scheffler, P. See Haese, U.
Scheibe, W., Dombrowe, H., and Herrmann, R. Effect of grinding aids on the adhesive forces in ground substances (5) 99*e*.
Scheinmann, E. Sch. See Bogatyreva, M. M.
Scheler, Herrmann See Werth, Frank R.
Schellbach, G. Prefabrication of brickwork (1) 15*f*; Implications for the production range of the brick and tile industry of the new building regulations relating to heat and sound insulation (9) 206*j*.
Schellbach, G., and Ulmeanu, S. Cross-sectional design of perforated bricks and its importance for their behavior under multiaxial stress conditions: I (7) 163*h*.
Schellberg, F. See Gelsdorf, G.
Schertler, Roman Vacuum coating apparatus, P (3) 79*b*.
Scheuermann, Glen R. See Kennedy, Kurt D.
Scheunemann, K., and Mueller-Buschbaum, Hanskarl Crystal structure of $La_2Ti_2O_7$ (5) 136*f*; Crystal structure of $Sr_2Nb_2O_7$ (5) 136*g*.
Schiavello, M. See Pepe, F.
Schiavi, W. F. See Visser, R. G.
Schieber, M. See Grabmaier, J. G.
Schiekel, Manfred, and Herzog, Heinz Glow-discharge tube, P (1) 14*c*.
Schiffarth, Josef, Lorkin, Clive G., and Fletcher, Kenneth J. Protection of C articles, P (7) 168*a*.
Schimko, R., Richter, C. E., Rogge, K., and Schwarz, G. Implanted As and B concentration profiles in SiO_2 layers (1) 40*e*.
Schinella, Richard D., and Anthony, Michael P. Forming a continuous layer of SiO_2 over a substrate, P (3) 76*a*.
Schintu, F. See Cavallini, A.
Schippel, Erhard Ceramic substrate material for metallic layer resistors (1) 24*h*.
Schiro, Donald J. See McKeehan, Ernest R.
Schiske, P. Phase determination from a focal series and the corresponding diffraction pattern in electron microscopy for strongly scattering objects (3) 80*h*.
Schlachter, Fredo See Keib, Heinz
Schlapp, Winfried See Schmidt-Bruecken, Heinrich
Schlegel, Dietrich, and Rautenbach, Robert Modeling of transport phenomena of plastic ceramic masses having a wall sliding effect in screw extruders (9) 221*d*.
Schlenker, Michel, and Shull, C. G. Polarized neutron techniques for the observation of ferromagnetic domains (7) 176*j*.
Schlinkert, Clemens New process for energy-saving firing of brick with coal (3) 81*e*; Report on a test to save energy in the firing of bricks (7) 177*f*.
Schmalfuss, A. See Feltz, A.
Schmank, Horst W. Rigidly bonded green ceramics, P (9) 214*f*.
Schmeckenbecher, Arnold F. Metalizing ceramic green sheets, P (7) 173*c*.
Schmelz, H. Incorporation of Pd and Pt into n-doped $BaTiO_3$ ceramic material (7) 171*d*.
Schmickl, Helfried, and Kohlhammer, Walter Ceramic capacitor for use with thin-layer circuits, P (3) 76*c*.
Schmid, F. See McCauley, J. W.
Schmid, Frederick Crystal growing, P (1) 31*e*.
Schmidt, Beuther L. See Jelinek, James W. ; Rodenbaugh, D. I.
Schmidt, G., Sorge, G., and Titz, H. Piezoelectricity of $NaH_3(SeO_3)_2$ crystals (5) 125*h*.
Schmidt, H. State of development of clay-bloating technique (5) 115*f*. Optical examination of harmful coarse components in structural clays and measures for preventing damage to the finished product (7) 163*d*. See Piltz, G.
Schmidt, Jean Double-sided exposure of a semiconductor wafer and apparatus for parallel and rotational alignment, P (5) 127*e*.
Schmidt, K. H. See Mueller, A.
Schmidt, Otto Rumanian refractories industry (3) 68*h*; Cement plant at Loutete in the People's Republic of the Congo (5) 98*j*; Ceramic folk art in Rumania (9) 193*b*.
Schmidt, Pierre E., Davila, Cruz, Esqueda, Paul, and Callarotti, Roberto Memory switching in Al-Al_2O_3-Al thin film devices (7) 171*j*.
Schmidt, Reinhold Dust extraction equipment for bulk material handling installations, P (3) 79*e*.
Schmidt, Warren H. D. Apparatus for drawing fibers by fluid means, P (7) 161*a*.
Schmidt-Bruecken, Heinrich, and Schlapp, Winfried Dry-soldering highly refractory materials, P (3) 69*i*; Strongly adhering metal films on ceramic and glass substrates (5) 126*j*.
Schmidt-Eisenhart, S. See Payne, D. A.
Schmidt-Whitley, R. D., Martinez-Clemente, M., and Castaing, J. Creep of polycrystalline Cu_2O (1) 36*g*.
Schmitt, G. F., Jr. Erosion behavior of materials in rain at high velocities (3) 87*i*.
Schmitt-Fogelevich, S. P. See Solovushkova, G. E.
Schmitt-Thomas, Karlheinz See Brandt, Klaus
Schmitz, Albert, Mulder, Cornelis, and Slob, Arie Semiconductor device utilizing simultaneous outdiffusion during epitaxial growth, P (5) 128*d*.
Schmoeker, Fritz Stream formation in dieless continuous glass casting (1) 11*a*.
Schnabel, K. H. See Czaran, E.
Schnapp, Juergen Dieter, Petzold, Armin, Busch, Helmut, and Eifert, Helmut System SiO_2-B_2O_3-Al_2O_3-RO-R_2O: I, Glass formation, phase separation, and crystallization in the system SiO_2-B_2O_3-Al_2O_3-MgO with low alkali earth oxide content: II, Melting behavior of glasses in the system SiO_2-B_2O_3-Al_2O_3-MgO-Na_2O-K_2O and its relation to the thermal expansion of the glasses (1) 12*g*.
Schnedelbach, G. See Eibisch, R.
Schneider, H., and Hornemann, U. Disproportionation of andalusite (Al_2SiO_5) into Al_2O_3 and SiO_2 at very high dynamic pressures (9) 229*d*.
Schneider, H., and Pannhorst, W. New high-temp. phase of andalusite (9) 235*d*.
Schneider, H. A. See Boudriot, H.
Schneider, J., and Wiesner, H. Temp. dependence of magnetization in Fe-P alloys rapidly quenched from the liquid state (5) 146*g*.
Schneider, Robert A., and Kroon, Willem L. Magnetic head face assembly using chemically machinable glass-ceramic bonding means, P (3) 76*f*.
Schneider, W. See Fink, W.
Schneider-Doering, Siegfried Faience or majolica? (5) 97*c*.
Schober, T., and Fischer, K. (111) coincidence twist boundaries in CdO crystals (5) 142*j*.
Schock, T. L. See Nakada, Y.
Schoen, H. O. Changes in plaster mold properties caused by solutions of $CaCO_3$ and NaCl (1) 22*h*.
Schoen, Manfred See Heinze, Gerhard
Schoenert, K. See Eifel, M.
Schoenherr, E., and Stetter, W. Growth spirals on a GeS crystal (1) 26*d*.
Scholes, Addison B. Apparatus and method for treating vitreous surfaces, P (5) 111*c*.
Scholes, Samuel R. Modern Glass Practice, revised by Charles H. Greene, B (7) 191*c*.
Scholessin, H. H. See Timco, G. W.
Scholze, Horst, Helmreich, Dieter, and Bakardjiev, Ivan Investigations of the behavior of soda-lime-SiO_2 glasses in dilute acids (7) 158*a*.
Schomel, R. R., and Hunter, O., Jr. Effects of temp. and microstructure on the elastic properties of selected Eu_2O_3-HfO_2 compositions (5) 138*a*.
Schoonheydt, Robert A., DeWilde, Willy, and Veighe, Firmin Conductivity and dielectric dispersions of hydrated and partially hydrated synthetic faujasites (7) 180*f*.
Schornhorst, James R. Continuous change of glass composition in a glassmaking process, P (3) 60*e*; Apparatus and method of controlling the orientation of a newly formed continuous sheet of flat glass, P (5) 111*b*; Conditioning flat glass for removal from supporting liquid following forming, P (5) 111*i*. See Muhlstadt, William J.
Schotman, Emiel F. See vanKonijnenburg, Jan T.
Schott, Jacques, and Dandurand, Jean-Louis Stability of natural carbonates. Reevaluation of free energy data in the systems MgO-CO_2-H_2O and CaO-MgO-CO_2-H_2O (7) 186*j*.
Schottey, Jean See Plumat, Emile
Schrack, R. A., and Bowman, C. D. (Editor)Nuclear Cross Sections and Technology—Proceedings of a Conference, B (3) 95*h*.
Schrader, R. See Tetzner, G.
Schrader, Richard, and Schumann, Horst Problems of mechanical activation and storage of cements (7) 152*h*.
Schramm, R., and Bissot, R. Mill trunnion bearings with hydrostatic lubrication (3) 78*g*.
Schrantz, Joe Electric enameling furnaces boost Harvestore quality (3) 54*i*.
Schreiber, Edward, Anderson, Orson L., and Soga, Naohiro Elastic Constants and Their Measurement, B (5) 148*d*.
Schreiber, G. See Deilmann, W.
Schreier, Ulrich See Dumesnil, Maurice E.
Schreiter, Peter Corrosion mechanism of fusion-cast corundum-baddeleyite blocks used in the melter and refiner superstructure of glass tanks (1) 16*e*.
Schrey, Frank See Gallagher, P. K. ; Gallagher, Patrick K. ; Johnson, David W., Jr.
Schricker, Karl See Pohlmann, Hans Juergen
Schroeder, J. B. See Goldstein, L. F. ; Slattery, J. E.
Schroeder, W. See Schuerkes, R.
Schroeder, W., and Gaipel, W. Diamond tools in the machining of glass fiber-reinforced plastics (9) 193*b*.
Schroer, John W. See Rosinski, Klaus D.
Schroth, P. H. See Shultz, R. L.
Schubart, Rolf Device for the production of magnetized ferrite moldings, P (9) 219*f*.
Schubert, Helmut Factors influencing the strength of high tension insulators (7) 169*b*.
Schuele, Donald See Andeen, Carl ; Fontanella, John
Schueller, Karl Heinz See Pohlmann, Hans Juergen
Schuerkes, R., and Schroeder, W. New grinding equipment for production of granular grog (5) 118*c*.
Schuette, Dieter, Diether, Jean, and Brunner, Helmut Modifying the surface properties of finely divided metal oxides, P (3) 83*d*.
Schuhbauer, Albert Experiments on the resistance and protection of cement using freeze-thaw cycles (7) 151*b*.
Schuil, Roelof E. Cathode-ray tube provided with a lumines-

cent silicate, P (7) 161*d*.

Schulling, Roelof D., Vergouwen, Lideke, and VanderRijst, H. Gibbs energies of formation of $ZrSiO_4$, $ThSiO_4$, and Be_2SiO_4 (7) 182*h*.

Schuldt, J. See Hansen, P.

Schulenberg, Michael See Fischer, A.

Schuller, W. H. W. Glass fiber mat, P (5) 112*e*.

Schulte-Oversohl, Manfred See Fieguth, Peter

Schultz, Peter C. Binary TiO_2-SiO_2 glasses containing 10 to 20 wt% TiO_2 (7) 154*j*. See Dumbaugh, William H., Jr. ; Keck, Donald B.

Schultz, Peter C., and Maurer, Robert D. Preparation and properties of low-loss glass optical wave guides (7) 159*f*.

Schultze-Rhonhof, E. Chemistry of bauxite extraction: III, System Na_2O-MgO-CaO-Al_2O_3-TiO_2-H_2O (9) 227*b*.

Schulz, B. Thermal expansion anomaly and thermal conductivity of U_3O_8 (1) 30*a*.

Schulz, M. ESR experiments on Ga donors in ZnO crystals (1) 38*e*.

Schulze, J., and Schwerdtfeger, I. Assessment of internal processes in the ZAB preheater for dry-process cement mfg. (3) 50*g*.

Schulze, Richard G., and Petersen, Paul E. Growth of GaP, GaP (3) 76*c*.

Schuman, Seymour Recovering UF_6, P (5) 130*f*.

Schumann, Horst See Schrader, Richard

Schuoecker, D. Theoretical analysis of thermally controlled switching in thin glass films (9) 203*c*.

Schuster, Ludwig K., and Tongyai, Singkata Aqueous coating compositions for asbestos cement, P (7) 153*j*.

Schuster, P. See Gugel, E.

Schwartzberger, Gheorghe Ceramic products decoration by indirect screen printing and the practical importance of this procedure (9) 214*g*.

Schwartzman, E. R. See Entelis, F. S.

Schwarz, G. See Schimko, R.

Schwarz, Hans G. Refractory fired shaped element, P (1) 22*b*.

Schwarz, Wolfgang See Wurmb, Rolf

Schweikert, William F. See Eppler, Richard A.

Schweitzer, Samuel See Kuhn, Otto

Schweizer, Hanspeter See Kane, James

Schwenninger, Ernest N., and Welton, Wright M., Jr. Measuring glass surface temp. during annealing, P (9) 205*d*.

Schwenninger, Ronald L. Method and apparatus for preventing erosion of a glass furnace basin wall, P (3) 61*g*; Flat glass inspection system, P (5) 112*i*; Method and apparatus for making molten glass, P (7) 162*j*.

Schwerdtfeger, I. See Schulze, J.

Schwerer, F. C. See Wasilewski, P.

Schwertmann, U. See Fischer, W. R.

Schwinger, Julian Psi particles and dyons (1) 44*b*.

Schwochow, Friedrich See Heinze, Gerhard

Schwuttke, G. H. See Ciszek, T. F.

Schwyn, Raymond E. See Kudza, Thomas M.

Scibor-Rylski, M. T. V. Residual phase corrugation in total-internal-reflection diffraction devices (1) 27*g*. See Ramachandran, V.

Scislewski, Zbigniew, and Suchan, Marian Determination of cement protection properties toward [steel] reinforcement (9) 194*a*.

Scott, G. J. See Clark, David E.

Scott, Garland E., Jr., and Levenson, Michael K. Chemically polished polycrystalline alumina material, P (5) 111*f*.

Scott, H. J., and Stiles, S. L. Medusa Cement Company expands its Clinchfield plant (7) 152*d*.

Scott, Russell J., Jr. Mold for tacking a hexagonal bundle of glass fibers, P (1) 14*i*.

Scott, Stuart D., and Cazeau, Charles J. Interdisciplinary approach to west Mexican ceramic history—cultural and mineralogic sherd analysis (5) 97*d*.

Scott, William H. Apparatus for controlling dust emissions, P (7) 175*d*.

Se, Tokio Changes in pottery design in Mino (1) 1*i*.

Sealy, B. J., and Crocker, A. J. Electron microscopy of epitaxial PbTe films (3) 73*h*.

Sease, John D. See Bradley, Ronnie A.; LaValle, D. E.

Seaver, Mark See Marshall, Thomas R.

Secco, E. A. See Natarajan, M.

Sechovsky, V. See Smetana, Z.

Sechovsky, V., Smetana, Z., and Menovsky, A. Neutron diffraction investigation of UGa_2 (1) 42*j*.

Sedakova, M. T. Production of expanded perlite and bodies made of it in Bulgaria (9) 211*c*.

Sedgwick, Thomas O. See Silvestri, V. J.

Sedlakova, L., Petrzilka, V., Mikula, P., and Chalupa, B. Effect of static electric field on neutron diffraction by lattice planes of KH_2PO_4 (1) 38*a*.

Sedlatschek, Karl, and Heitzinger, Friedrich Cermet materials with metal-free surface zones, P (9) 212*g*.

Sedlmeir, W. Freely programmable electronic control systems—first experience in the cement industry (3) 51*f*.

Sedmale, G., Sedmalis, U., Elduks, J., and Daugavietis, G. Glass, P (9) 204*h*.

Sedmalis, U. See Sedmale, G.

Sedova, R. V. See Zavarzina, E. I.

Sedykh, T. S., Pustil'nik, A. I., and Mikheikin, V. I. Refractive indices in the system Y_2O_3-SiO_2-Al_2O_3 in the vitrification region (5) 110*a*.

Seebach, H. M. v. See Sillem, H.

Seebacher, Baerbel Stabilizing the hot resistance of ceramic PTC resistors, P (5) 128*f*.

Seeburger, Thomas A. Furnace seal, P (1) 34*b*.

Seeds, Robert B., and Luce, Robert L. MOS transistor structure, P (5) 127*h*.

Seeger, M. See Fischer, W. A.

Seela, Jacob Early Finnish glass industry (3) 49*j*.

Seeley, J. S. See Evans, C. S.

Segal, E. See Constantinescu, Mihaela

Segawa, Tunehiro See Suzuki, Narishige

Segel, S. L. See Reyes, J. M.

Segnit, E. R. See Holland, A. E.

Segre, Joseph P., and Truscott, Norman R. Erbium laser ceilometer, P (9) 204*e*.

Segrove, H. D. United Kingdom sources of glassmaking sands (9) 226*c*.

Segsa, K. H., and Spenke, S. EPR on Mn-doped GaAs epitaxial layers (1) 25*j*.

Seguin, H. J. J. See Hillman, G. D.

Seidel, B. See Dehe, G.

Seidel, B., and Debe, G. Moessbauer study of cation distribution in $Fe_{3-x}Cu_xO_4$ (3) 90*b*.

Seidman, A. See Bar-Chaim, N.

Seifert, Friedrich A., and Virgo, David Kinetics of the Fe^{2+}-Mg order-disorder reaction in anthophyllites—quantitative cooling rates (1) 41*e*.

Seiler, Karl See Rau, Karlheinz

Seiter, Hartmut Preparing layers of SiC on a Si substrate, P (9) 219*i*.

Seki, Syuzo See Suga, Hiroshi

Seki, Yachio, and Nakamura, Masaya Foam glass, P (7) 161*b*.

Sekihata, Masao See Otsuka, Kanji

Sekiwa, Tetsuo See Beppu, Tatsuro

Sekiya, Michio See Shirasuka, Kouhei

Seko, Maomi, and Kakihana, Hidetake Concentration of ^{235}U using ion exchange resins, P (9) 221*a*.

Selenina, M. See Czaran, E.

Seleznev, V. N. See Velikov, L. V.

Seleznev, Yu. E., Burkin, Yu. A., and Kuz'min, Sergei V. Apparatus for making ferrite matrices, P (5) 126*i*.

Selim, F. A., Swaminathan, V., and Kroeger, F. A. Precipitation in pure and In-doped CdTe as a function of stoichiometry (5) 144*d*.

Selinger, Iwona See Rink, Ryszard

Selishcheva, Yu. F. See Boldina, E. F.

Sellers, David J., Rhodes, William H., and Vasilos, Thomas Transparent alumina, P (1) 24*i*.

Sellevold, Erik J., and Radjy, Fariborz Drying and resaturation effects on internal friction in hardened cement pastes (7) 151*a*.

Sells, George C. Benefits and pitfalls of automation (1) 15*b*.

Selvaratnam, M., and Garn, Paul D. Kinetics of thermal decompositions—an improvement in data treatment (9) 234*h*.

Semak, D. G., Turyanitsa, I. D., and Kikineshi, A. A. Trapping levels in the crystals and glasses in the system Sb-S-I (5) 111*a*.

Semba, Kimio See Furumi, Koichi

Semchenko, G. D. See Stanilov, B. E.

Semendyaev, A. F., Obukhova, N. V., and Shneiderov, V. V. Production of 3000 tons/day of cement by the dry process (1) 3*b*.

Semenenko, K. N. See Boiko, G. N.

Semenova, T. V. See Bal'skaya, L. A.

Semerchan, Aik A. See Vereshchagin, Leonid F.

Semin, E. G. See Shevyakov, A. M.

Semin, G. K. See Baisa, D. F.

Semkina, N. V., and Gur'yanov, P. E. Protective casings for thermocouples in air heaters of blast furnaces (1) 19*d*.

Semkina, N. V., Mamaeva, G. A., Obrosov, V. P., and Nechaev, E. A. Properties of corundum tips used in the detection of O in steel (1) 19*b*.

Sen, P. C. See Mathur, N. N.

Sen, S. C. See Pathak, N. L.

Sen, S. P. See Tiwari, R. N.

Sen, Sudhir See Guha, S. K.

Senderov, E. E. See Shchekina, T. I.

Sengupta, N. R., and Chowdhury, A. N. Rapid method for analysis of bauxite (9) 223*c*.

Senkevich, N. A., and Khait, O. D. Glass tank furnaces with two production basins for melting crystal glass (1) 8*c*.

Sennov, O. N. See Katorgin, G. M.

Senoo, Keiji See Kagawa, Hiroshi

Sensi, John E. Movable dam barriers for use in the manufacture of a glass ribbon on a molten metal bath, P (5) 113*c*. See Gulotta, Joseph A.

Sentementes, Thomas J., Castello, Eugene A., and Coppola, Richard Coating photoflash lamp, P (9) 204*h*.

Senyavin, N. K. See Boricheva, V. N.

Senyavin, N. K., and Khlebnikova, I. Yu. Apparatus for determining the resonance frequency of nonmetallic materials (refractories) during a study of their elastic properties (9) 222*e*.

Seo, Il Young, and Choi, Sang Heul Effect of $CaSO_4$ and $BaSO_4$ on the formation of portland cement clinker (1) 2*b*; Effect of $BaSO_4$ on the structural transformation in tricalcium silicate (3) 86*f*.

Serba, A. A. See Gorban, A. P.

Serbezova, R., Kovachev, I., and Radkova, A. Microstructure of porous ceramics for ir emitters (3) 66*j*.

Serchuk, Alan Thermal insulation—coming in from the cold (5) 121*d*.

Serebryakova, A. V., Vatolin, N. A., Volkova, P. I., and Sapozhnikova, T. V. Ir spectra and mineralogical composition products of oxidation V spinels (9) 233*b*.

Seregin, P. P., Sagatov, M. A., Mazets, T. F., and Vasil'ev, L. N. Influence of the crystal-glass transition on the state of impurity tin atoms in chalcogenide semiconductors (3) 57*d*.

Serenko, N. F. See Bron, V. A.

Sergeev, G. G. See Strakhov, V. I.

Sergeev, N. I., and Podlesnyi, V. S. Production technology of porous aggregates from perlites (9) 196*d*.

Sergeeva, K. A., and Romashina, M. N. Upgrading the industrial-economic parameters for the production of lightweight aggregates (9) 197*e*.

Sergeys, Francis J. Porous ceramic exhaust oxidation catalyst, P (5) 122*e*.

Serkowski, Stanislaw See Rozanowski, Boleslaw

Serna, J. See Pareja, R.

Seryakov, V. S. See Matveev, A. I.

Seshadri, K. See Vyas, M. H.

Seskutov, Yu. V. See Protsenko, L. M.

Sestak, J. Applicability of DTA to the study of crystallization kinetics of glasses (1) 5*b*.

Setaka, Nobuo See Kijima, Kazunori

Seto, Hiroshi Japanese potter in America (7) 149*c*.

Setoguchi, Masahiro, and Sakamoto, Chiaki Crystal growth of willemite by flux method (3) 85*i*.

Setoyama, Katsumi, and Takahashi, Satoshi Improvement in water resistance of set gypsum (5) 100*e*.

Setzer, M. J. Method for description of mechanical behavior of hardened cement paste by evaluating adsorption data (7) 152*d*.

Sevast'yanov, V. G. See Ellert, G. V.

Sevcik, Z. See Rybka, V.

Severyanina, E. N., Dudnik, E. M., and Paderno, Yu. B. Electrical and thermal conductivities of the tetraborides of some rare earth metals (1) 38*i*.

Seward, Thomas P., III, and Tick, Paul A. Ag-free polarizing photochromic glasses, P (9) 206*d*.

Seyd, Guenter See Korn, Roland

Seydl Wolfgang See Wurmb, Rolf

Shaalan, M. S., and Little, V. I. Application of multiple-beam, white-light fringes to the study of surfaces (1) 32*b*.

Shabashov, Ya. F. See Prokhorova, I. Ya.

Shack, W. J. See Matthews, J. R.

Shackelford, James F. Nondestructive testing of ceramics—nomograph for X- and γ-radiography (5) 131*g*.

Shacklette, L. W., and Ashworth, H. Hall coeff. of VC as a function of temp. and C concentration (7) 182*i*.

Shade, Ray W. See Sliva, Daniel E.

Shaffer, Francis N., Palumbo, Dominic T., and Palumbo, Frances A. Ca Li silicate phosphors, P (3) 83*j*.

Shah, Imtiaz H., Ayub, M., Shahid, K. A., and Faruqi, F. A. Evaluation of Swat clay coarse fraction as a raw material for ceramic bodies (5) 133*j*.

Shah, R. G., Rao R. V. V. Krishna, and Ullal, B. Physical properties and mullite content of chemical stoneware and porcelain (3) 71*j*.

Shah, V. See Fischer, W. A.

Shahi, K., and Chandra, S. Electrical conductivity and thermoelectric power of $Ag_6I_4WO_4$ solid electrolyte (5) 125*g*.

Shahid, K. A. See Din, Ahmad ; Shah, Imtiaz H.

Shahidi, M., Hasted, J. B., and Jonscher, A. K. Electrical properties of dry and humid sand (9) 231*d*.

Shaikh, Naz Ahmed, and Brusewitz, A. M. B. FeO content and unit cell parameters of magnesite from the Rakas and Apartjakka deposits, Sweden (7) 178*f*.

Shaimuradov, I. B., Reshetnikova, L. P., and Novoselova, A. V. Double fluorides of composition Rb_3LnF_6 (1) 37*f*.

Shainberg, I. See Keren, R.

Shainberg, I., and Levy, Rachel Electrical conductivity of Na-montmorillonite suspensions (5) 138*e*.

Shaisha, E. E. See Eissa, N. A.

Shaked, H. See Shamir, N.

Shakhmeister, A. B., Trachevskii, M. L., Dvinova, R. A., and Nesterenko, I. P. Use of X-ray quantometers for the chemical analysis of ceramic ware (1) 33*h*.

Shakhno, I. V. See Savel'eva, M. V.

Shakhnovich, I. G. See Rakina, V. P.

Shakhov, N. I., and Kalenskii, Yu. G. Furnace roofs made of refractory concretes with ceramic tie bolts (9) 209*g*.

Shakhshaev, G. M. See Kamilov, I. K.

Shakhtin, D. M., Bogatyrev, I. S., and Pechnezhskii, V. I. Apparatus for determining thermal conductivity of graphite- and C-containing blast-furnace blocks (9) 222*e*.

Shakhtin, D. M., and Eliseeva, G. G. Thermal expansion of aluminosilicate and Dinas refractories for blast furnaces (5) 121*d*.

Shal, B. V. See Ivanov, I. A.

Shalamova, I. P. See Poluboyarinov, D. N.

Shalimova, I. F. See Belyaev, R. A.

Shamir, N., and Shaked, H. Magnetic structure of $CoGeO_3$ (9) 234*g*.

Shamro, E. A. See Soboleva, T. R.

Shanefield, Daniel J., and Mistler, Richard E. Filter for ceramic slips (5) 129*j*.

Shank, Herbert C., Jr. Color-decorated plastic-coated glass article, P; Thermoplastic glass articles, P (5) 111*g*.

Shannon, R. D., Chenavas, J., and Joubert, Jean C. Bond strength considerations applied to cation coordination in normal and high-pressure oxides (7) 179*h*.

Shannon, Richard F. See Heiser, Jerry L.

Shapakidze, V. N., and Gedzhadze, I. V. Granulation and briquetting of a glass charge (9) 200*f*.

Shape, Norman R. Apparatus for simultaneously packaging glass strands into individual packages, P (1) 13*e*.

Shapiro, Ya. Z. See Degtyareva, E. V. ; Kabakova, I. I.

Shapiro, Ya. Z., Degtyareva, E. V., Kotel'nikov, G. R., and

Bushin, A. N. Magnesite-spinel products from molten materials using wastes from chemical industry (1) 18*d*.
Shapovalov, V. I. See Lisovskii, F. V.
Shapovalov, V. S., Pyatikop, P. D., Nedosvitii, V. P., and Antonov, G. I. Effect of charge composition on melting conditions and properties of electrically melted steel (1) 16*j*.
Shapovalova, N. N. See Mel'nik, M. T.
Shappirio, J. R. See Hakim, E. B. ; Menashi, W. P.
Sharapov, R. I. See Rakhimkulov, M. G.
Sharipov, S. M. See Basov, A. M.
Sharma, B. B., Ayyar, R., and Singh, H. Cubic phase in the Cu_2GeSe_3-Ge system (5) 137*a*.
Sharma, B. D. See Radhakrishna, S.
Sharma, B. L., and Mukerjee, S. N. (*p*)GaP-(*n*)GaP-*p*)GaAs heterostructure (5) 143*j*.
Sharma, C. D. See Alam, M. Izhar
Sharma, M. G., and Kim, K. S. Nonlinear viscoelastic properties of bituminous concretes (5) 100*f*.
Sharma, M. N. See Tripathi, S. R.
Sharma, N. C., and McCartney, E. R. Dielectric properties of pure $BaTiO_3$ as a function of grain size (7) 170*d*.
Sharova, N. M. See Alekseenko, L. S.
Sharp, E. J., Miller, J. E., Horowitz, D. J., and Linz, A. Optical spectra and laser action in Nd^{3+}-doped $CaY_2Mg_2Ge_3O_{12}$ (9) 236*f*.
Sharp, John H. See Mitomo, Mamoru
Sharpe, Robert E. See Brockway, M. Clifford
Sharples, John P., and Navrotsky, A. Stability of two Co titanate defect spinels (7) 187*a*.
Shashkin, D. P., Lur'ye, E. A., and Belov, N. V. Crystal structure of $Na_2(UO_2)SiO_4$ (9) 228*d*.
Shattes, Walter J., and Marancik, William G. Coating of C-containing substrates with TiC. P (3) 69*g*.
Shatzkes, Morris See Av-Ron, Moshe
Shatzkes, Morris, and Av-Ron, Moshe Impact ionization and positive charge in thin SiO_2 films (9) 217*g*.
Shatzkes, Morris, Av-Ron, Moshe, and Anderson, R. M. Conduction and switching in SiO_2 (9) 227*j*.
Shavrov, V. G. See Dickshtein, I. E.
Shaw, Herbert C. See Bolton, Anthony P.
Shaw, M. P. See Jackson, Julius
Shawver, Bruce M. See McKeehan, Ernest R.
Shay, G. Clinton Glass delivery for press forming. P (3) 61*d*.
Shchedrin, A. I. See Bondar, V. M.
Shchedrov, S. A. See Gavrish, D. I.
Shcheglov, S. I., Barkalova, T. K., Moskalenko, V. F., and Raichenko, T. F. Unfired C-containing semiacid ladle products (1) 20*a*.
Shcheglov, S. I., Karasik, V. L., Derkach, S. N., and Khoinyak, E. A. Graphitic-siliceous high-stability ramming compound (9) 209*g*.
Shcheglova, L. N. See Kilin, V. S.
Shcheglova, M. D. See Zaporozhets, V. B.
Shchekina, T. I., Garanin, A. V., and Senderov, E. E. Structural state of synthetic albites (1) 46*e*.
Shchelkonogova, V. N. See Zhukov, A. V.
Shchepochkina, N. I. See Kotlova, A. G.
Shcherbak, I. A. See Samsonov, G. V.
Shcherbakov, A. F. See Perepelitsyn, V. A.
Shcherbakov, Yu. I. See Chetkin, M. V.
Shcherbakova, N. P. See Patrin, P. A.
Shcherban, N. I. See Radomysel'skii, I. D.
Shcherbenko, G. N. See Onishchenko, P. V.
Shcherbenko, G. N., Antonov, G. I., and Kulikova, A. S. Effect of technological factors on properties of MgO-Al_2O_3 based spinel (3) 65*a*.
Shcherbina, O. D. See Sleptsov, V. M.
Shcherbina, R. E. See Vasil'chenko, V. S.
Shchetkina, T. Yu. See Gribko, V. F.
Shchetnikova, I. L. See Khoroshavin, L. B.
Shchevelev, V. N. Production technology of lime flour in a hammer mill (9) 196*d*.
Shcheveleva, G. M. See Sandulova, A. V.
Shchipachev, G. E. See Raevskii, G. V.
Shchitsin, A. G. See Il'inskii, B. P.
Shchitsina, Yu. K. See Il'inskii, B. P.
Shchukin, Vitaly S. See Kabanov, Nikolai P.
Shchurov, A. F. See Sorochkin, M. A.
Sheard, John L. Metalizing compositions, P (9) 219*e*.
Sheddoh, F., and Pedro, Georges Characterization of the different stages of transformation of biotites and chloritized biotites in the Morvan granites. Mineralogical and geochemical consequences on the evolution of micas in global surface conditions (3) 84*i*.
Sheeran, D. E., and Krizek, R. J. Spectrophotometric technique for the fabric analysis of monomineralic kaolinitic soils (3) 81*b*.
Shefsiek, Paul Evaluation of balanced pressure air/fuel ratio control for a recuperative burner system (3) 81*c*.
Sheft, I. See Chatelet, J.
Sheikh, M. Rashid See Din, Ahmad
Sheikh-Zade, R. M., and Ganieva, R. N. Physicochemical properties of Angren kaolins (1) 34*b*.
Sheinkman, A. I. See Belozerov, B. P.
Sheinman, E. Sh. See Kyuin, D. K.
Shekerdzhiiska, M. See Dyakovska, Tsv.
Shekhter, R. I., and Rozhavskii, A. S. Kinetics of conductivity of electrons in multidomain ferromagnetic structures (1) 41*d*.
Shelby, J. E. Effect of thermal history on He diffusion and solubility in vitreous B_2O_3 and Na borate glasses (7) 156*a*; He migration in alkali borate glasses (7) 157*a*; He, deuterium, and Ne migration in a common borosilicate glass (9) 200*i*.
Shelby, J. E., and McVay, G. L. Influence of water on the viscosity and thermal expansion of Na trisilicate glasses (9) 201*e*.
Shelby, J. E., and Wayne, R. C. Gas migration in vitreous B_2O_3 (9) 200*b*.
Sheldon, D. A., and Lewis, David Fabrication and properties of ceramic fiber-ceramic matrix composite (9) 215*e*.
Shelef, Mordecai See Gandhi, Haren S.
Shelegeda, A. I. See Myasnikov, A. A.
Shelud'ko, V. V. See Al'bats, B. S.
Shender, E. F. See Ginsburg, S. L.
Sheppard, R. A. See Munson, Ronald A.
Sher, A. H. Improved ir response technique for detecting defects and impurities in Ge and Si *pin* diodes (1) 32*c*.
Sherif, Fawzy G., Hayford, John S., and Blanch, Julian E. Recovery of SO_2 from waste gas emissions, P (3) 79*j*.
Sherk, Thomas A. Applying a dielectric glass to a glass substrate, P (3) 60*a*.
Sherk, Thomas A., and Tummala, Rao R. Dielectric glass composition, P (3) 60*h*.
Sherstnikov, D. S. See Denyakin, Z. A.
Sherstyukov, N. G., and Lifanov, I. I. Thermal expansion of single crystal quartz (9) 241*d*.
Sherwin, Christopher J. Self-attaching fired ceramic tile body, P (9) 216*e*.
Shevchenko, E. G., Dolginov, L. M., Gimel'farb, F. A., and Dubenskii, K. K. Preparation and properties of epitaxial layers of GaAs-ZnSe solid solutions (3) 74*e*.
Shevchenko, S. A. See Osip'yan, Yu. A.
Shevchenko, V. V. See Yashchishin, I. N.
Shevchik, Nigel J., and Paul, William Voids in amorphous semiconductors (1) 27*g*.
Shevchuk, L. D. See Chetkin, M. V.
Shevyakov, A. M., Semin, E. G., Sizonenko, A. P., and Petrov, Yu. A. Destruction of Be (3) 85*j*.
Shewchun, J., and King, Frederick D. Gas doping of vacuum-evaporated epitaxial Si films, P (7) 172*g*.
Shibata, Hidetoshi See Hattori, Ken
Shibata, Kenichi See Aoki, Susumu
Shibata, Shozi See Ito, Suketoshi
Shibata, Yukio See Adachi, Hiroshi
Shibayama, Kimio, and Sato, Hiroaki Li niobate piezoelectric substrate for use in an acoustic surface-wave device, P (9) 219*c*.
Shibuno, Masao, Fujiwara, Teiichi, and Yoshikawa, Yasushi Comparison of refractoriness under load for SiO_2 bricks by testing methods of several countries (9) 208*a*.
Shibusa, Yoshihiro See Yasuda, Eiichi
Shibuya, Takehiro See Moriguchi, Toshio
Shiever, John W. See Nassau, Kurt
Shikano, Hiroshi See Furumi, Koichi
Shilov, Yu. S. See Khigerovich, M. I.
Shima, Hiromi See Sugaki, Asahiko
Shimabayashi, Masao See Kakei, Mitsuo
Shimada, Hachiro, Takanashi, Yoriyuki, and Endo, Kazuo Day-tank operation in electric melting of borosilicate glasses with daily output of 90 kg (3) 56*b*.
Shimada, Kinji, and Fukushige, Yasuo Properties of volcanic glass in Shirasu (5) 109*i*.
Shimada, Kohei See Sugita, Kiyoshi
Shimada, Koji See Kaneki, Noriaki
Shimada, Noburo See Takahashi, Osamu
Shimada, Noburo, Koyama, Y., Miyamoto, Akira, and Takahashi, Osamu New structure for bottom lining of melting furnaces (3) 66*a*.
Shimada, Noburo, Koyama, Y., Miyamoto, Akira, and Kobayashi, Motonobu Construction of blast-furnace hearth bottom with new type brick and its industrial application (9) 208*c*.
Shimada, Noburo, Takahashi, Osamu, and Ono, Isao Designing shapes for refractories for hearth of rotary hearth furnace (3) 64*d*.
Shimada, Noburo, and Takahashi, Tadaaki High-temp. properties of basic brick: III (5) 117*i*.
Shimada, Shiro See Matsushita, Toru
Shimakawa, Koichi, Yoshida, Akira, and Arizumi, Tetsuya Photoconduction of glasses in the Te-Se-Sb system (1) 43*e*.
Shimamura, Gozo, and Yamagata, Keizo Problems in the construction of tunnel kilns from the operational point of view (3) 67*a*.
Shimamura, Hiroyuki, Takashima, Hisashi, and Yamada, Suehiro Present situation and use of rotary nozzle: II (5) 118*j*.
Shimanaka, Hiroshi See Irie, Toshio
Shimizu, Katsuko Sonic test of bond strength of grinding wheels (9) 193*d*.
Shimizu, M. See Ikeda, K.
Shimizu, Satoshi See Terada, Kiyoshi
Shimizu, Tadao, Hashimoto, Koshiro, and Yanagida, Hiroaki Hydrothermal synthesis of K titanate fibers from K_2O-TiO_2 glass (5) 107*f*; K titanate glass fibers obtained under hydrothermal conditions (5) 109*e*; Fibrous alkali titanates, P (7) 172*f*.
Shimizu, Tadao, Yanagida, Hiroaki, and Hashimoto, Koshiro Synthesis of CrO_2 from decomposition of CrO_3 with $HCrO_2$ seed crystals (9) 240*i*.
Shimizu, Takashi See Kaneki, Noriaki
Shimizu, Tatsuo See Watanabe, Ichiro
Shimoda, Susumu See Nishiyama, Tsutomu
Shimoji, Mitsuo See Nakamura, Yoshio ; Ninomiya, Yuhachi
Shimosaka, Koya See Nishiyama, Tsutomu
Shin, Byoung Sik, and Kim, Myun Sup Improvement of adsorbability of methylene blue on bentonite treated with electrolyte solution (3) 89*a*.
Shin, Hyunkook Firing process for Al_2O_3 yarn, P (9) 213*b*.
Shin, S. H. See Chandrashekhar, G. V.
Shin, S. H., Halpern, T. H., and Raccah, P. M. Crystal growth and study of the stoichiometry of NbO_2 (1) 36*i*.
Shin, S. H., Pollak, Fred, Halpern, T., and Raccah, P. M. Reflectivity, resonance Raman scattering, and energy level structure in Ti_2O_3 (7) 186*a*.
Shin, S. H., Pollak, Fred, and Raccah, P. M. Effects of uniaxial stress on Raman frequencies of Ti_2O_3 and Al_2O_3 (7) 181*h*.
Shinada, Tsunetoshi See Ando, Jumpei
Shinagawa, Kiminari, Hishiyama, Sadao, Takeuchi, Hiroshi, and Taniguchi, Satoshi Ferrimagnetic material, P (7) 172*d*.
Shindo, Isamu, and Suzuki, Hiroshige Hydrothermal solubility of BeO in NaOH solutions (1) 40*d*.
Shindo, Kazuo See Saito, Kiyoshi
Shinkareva, N. A. See Kreingol'd, S. U.
Shinnobu, Michito, Nishikawa, Yasuo, Okamoto, Noboru, and Okamura, Takeo Gunning materials for ladle (7) 165*c*.
Shinoda, Daizaburo Semiconductor layer of high resistivity, P (5) 128*d*.
Shinohara, Yasuaki See Ohba, Atsushi
Shinoyama, Seizi See Uemura, Chikao
Shinozaki, S. See Sato, H.
Shintock, Eugene See Svendor, John S.
Shiozawa, Masayuki Application of sintered bodies of TiO_2 doped with Nb_2O_5 to anodic photooxidation of water (3) 72*j*.
Shipilov, P. A. See Stepanov, V. S.
Shipilova, L. A. See Oleinik, G. S.
Shipilova, L. A., and Oleinik, G. S. Effect of heat treatment on the electrical properties of SiC-based material (7) 164*f*.
Shipko, M. N. See Belov, V. F.
Shipp, R. See Horsley, G. W.
Shirakashi, Shigeru, Iwata, Shohachi, and Nakamura, Tomikazu Method of lining tundish for continuous casting (3) 66*i*.
Shiraki, Yoichi, Otsuka, Nozomu, and Ninomiya, Hideaki Slip casting of $BaTiO_3$ (1) 23*g*.
Shiraki, Yoichi, Wakabayashi, Shoichi, Yokoyama, Mitsunobu, and Yokoyama, Isao Slip casting soft ferromagnetic ferrites, P (3) 77*h*.
Shirasaki, Shinichi See Yamamura, Hiroshi
Shirasaki, Shinichi, Takahashi, Koichiro, Yamamura, Hiroshi, and Kakegawa, Kazuyuki Defect ferroelectrics of type $Pb_{1-x}TiO_{3-x}$ (7) 180*c*.
Shirasuka, Kouhei, and Yamaguchi, Goro Precise measurement of crystal data and the solid solution range of the defective spinel $MgO.nAl_2O_3$ (1) 44*d*; Application of the exsolution phenomenon in the Al_2O_3-rich spinel solid solution to sintering (5) 135*j*; Exsolution precipitates in the periclase solid solution of the system MgO-Al_2O_3-Fe_2O_3-Cr_2O_3 (9) 232*a*.
Shirasuka, Kouhei, Yamaguchi, Goro, and Miyagi, Yoshihiro Composition and structure of spinel solid solution in the system ZnO-Al_2O_3 (7) 180*d*.
Shirasuka, Kouhei, Yamaguchi, Goro, and Sekiya, Michio Solid solutions of the systems CaO-MgO and $Ca(OH)_2$-$Mg(OH)_2$ (7) 152*g*.
Shirkey, W. D. See Hagy, Henry E.
Shiro, Yuji See Yamamoto, Akio
Shishkina, L. M. See Polyakov, S. A.
Shisler, Donald E. See Hahn, William P.
Shitova, E. V. See Kruze, T. A.
Shitova, V. I. See Grebenshchikov, R. G.
Shkalikova, K. I. See Kuznetsova, S. K.
Shkol'nikov, E. V. Semiconducting glass crystals made of As and Pb selenides (3) 59*h*.
Shkumat, N. V. See Nisman, M. S.
Shkurdai, T. A. See Tseplovich, B. I.
Shliomis, M. I. See Martsenyuk, M. A. ; Raikher, Yu. L.
Shlomenko, A. A. See Berkovich, T. M.
Shlyuko, V. Ya. See Samsonov, G. V. ; Stepanchuk, A. N.
Shmakov, V. D. See Kalugina, L. V.
Shmatko, G. G. See Aivazova, L. S.
Shmelev, Anatoly N. See Illiunin, Vladimir G.
Shmidt, E. V. See Daunov, M. I.
Shmitt-Fogelevich, S. P. See Kuznetsov, Yu. D. ; Strakhov, V. I.
Shneiderov, V. V. See Semendyaev, A. F.
Shoemaker, Robert H., and Wood, William G. Descaling ferrous metals, P (7) 154*a*.
Shoji, K. See Austin, L. G.
Sholokhova, V. I., and Tovmas'yan, I. K. Reciprocal system of the chlorides and iodides of K, Rb, and Cs (1) 45*c*.
Shonebarger, Francis J., and Brown, William Lubricity coating for plastic-coated glass articles, P (5) 113*g*.
Shonozaki, Tomonobu, and Ishiwata, Shuuji Relation between exoelectron emission and performance of abrasive grains (1) 1*c*.
Short, N. R., and Henry, W. G. Vapor phase growth of PbS single crystals (1) 48*a*.
Short, Oliver A. Cd-containing silver conductor compositions, P (3) 76*c*.
Shortes, Samuel R. See Pollack, Gordon P.
Shostak, I. S. See Varfolomeev, M. B.
Shousha, Abdel Halium M. Filamentary breakdown in thin anodic films (1) 25*j*.
Shpak, N. A. See Komskaya, M. S.
Shpenik, O. B. See Panev, G. S.
Shrader, R., and Kenke, K. Kinetics of reactions in the systems CaO-SiO_2 and CaO-Al_2O_3 (1) 3*d*.

Shreir, L. L. See Nwoko, V. O.

Shriner, Rollin R. See Huber, William W.

Shtefan, G. E., Zuev, B. I., and Sushkova, E. M. Low-shrinkage ceramic tiles for the inner facing of walls (5) 123*f*.

Shteinberg, Yu. G., Tyurn, E. Yu., Berezovskaya, V. A., and Kovalev, G. I. Effect of bivalent cations on the fine microstructure and properties of alkali-free glaze coatings (5) 123*f*.

Shteinberg, Yu. G., Tyurn, E. Yu., Berezovskaya, V. A., and Kovalev, G. I. Fine microstructure and properties of segregating glazes for majolica (1) 23*f*.

Shtorch-Shuker, P. Plasma freq. of V_2O_3 (1) 43*i*.

Shubin, G. A. See Cherepov, P. V. ; Simonov, K. V.

Shugart, James C. See Stadelmaier, Hans H.

Shukla, Madhu, and Bansigir, K. G. Microhardness and Schottky defects in alkali halides (7) 184*b*.

Shukle, Archie A. See Somers, Arthur V.

Shukuya, Akio See Naito, Kiyoshi

Shulishova, O. I. See Samsonov, G. V.

Shull, C. G. See Schlenker, Michel

Shull, H. Eugene Design and use of a tensile test device for small brittle material specimens (5) 131*c*.

Shull, H. Eugene, and Dickey, Clyde W. Design and use of a 10-200 kHz ultrasonic system for measuring elastic moduli and mechanical Q of hard materials (3) 79*h*.

Shul'man, L. D. See Ustimovich, A. B.

Shul'ts, M. M. See Ershov, O. S.

Shultz, R. L. See Baker, B. H. ; Brezny, Bohus

Shultz, R. L., and Schroth, P. H. Steel mill refractory practice as influenced by energy conservation (5) 120*f*.

Shul'zhenko, Alexandr A., and Get'man, Anatoly F. Synthetic diamonds, P (1) 1*g*.

Shuman, Harry N. See Huber, William W.

Shumilin, V. P. See Lopatin, G. S.

Shur, Ya. S. See Khrabrov, V. I.

Shur, Ya. S., and Khrabrov, V. I. Magnetic properties of $YFeO_3$ single crystal powders (9) 234*e*.

Shutilov, V. A. See Kul'bitskaya, M. N.

Shutt, Thomas C., and Campbell, Howard Fired construction shapes and binder therefor, P (9) 204*g*.

Shuvalikhina, L. V. See Kovel'man, G. A.

Shuvalov, L. A., Kirikov, V. A., Gvozdover, R. S., and Zheludev, I. S. SEM investigation of the domain structure of a Na trihydroselenite crystal (3) 91*c*.

Shuvalov, V. V. See Gorislavskii, V. I.

Shuvanov, A. D. See Yudin, N. A.

Shvab, S. A. See Kislyi, P. S.

Shvalko-Shvaikovskaya, T. P. See Mazurin, O. V.

Shvartsman, V. L. See Galaev, A. A.

Shvedov, L. V. See Gorbatyuk, V. A.

Shvets, V. I. See Poltavtsev, Yu. G.

Shvorneva, L. I. See Melkonyan, R. G.

Shy, James L., and Bliemeister, Robert M. Method and apparatus for adjustably feeding raw material to a preheater for a kiln, P (9) 197*c*.

Sibleude, F. See Yoshimura, Masahiro

Sibiryakov, V. A. See Kryuchenkov, D. A.

Siddiqui, Nadeem U. See Oshida, Otto A.

Sideris, Konstantin See Ludwig, Udo

Sidochenko, I. M. See Baklanov, G. M.

Sidorchuk, P. G. See Konnikov, S. G.

Sidorenko, F. A. See Chechernikov, V. I.

Sidorko, V. R. See Eremenko, V. N.

Sidorov, N. A. See Stepanov, V. S.

Sidorov, S. K. See Chukalkin, Yu. G.

Sidorov, T. A., Grechishkin, V. S., and Zlatogorskii, M. L. NMR spectra of ^{7}Li and structure of glasses of the system Li_2O-K_2O-TiO_2-SiO_2 (3) 58*d*.

Sidorov, Yu. G. See Khokhlov, V. I.

Sidorova, T. A. See Ved, E. I.

Sidyakin, V. G. See Aivazova, L. S.

Siebeneck, H. J., Hasselman, D. P. H., Cleveland, Joseph J., and Bradt, R. C. Effect of microcracking on the thermal diffusivity of Fe_2TiO_5 (7) 180*j*.

Siebeneck, H. J., Minnear, W. P., Bradt, R. C., and Hasselman, D. P. H. Thermal diffusivity of nonstoichiometric TiO_2 (3) 93*b*.

Siegel, Howard M. See Lee, Leonard S.

Sieger, John S. Chemical characteristics of float glass surfaces (7) 155*f*.

Siegers, Ulrich See Bollmohr, Hermann

Siegert, Michael See Kroenert, Wolfgang

Siegmund, Walter P. Glass clad glass lenses, P (1) 14*h*; Optical fiber with porous cladding, P (1) 15*a*. See Strack, Richard R.

Siegwart, R. I. Refractory materials in small Al melters (3) 67*j*.

Sieja, Jon S. Guide for use in apparatus for manufacturing flat glass, P (7) 162*a*.

Sienko, M. J. See Wanlass, David R.

Sierra, J., and Cabrera, J. M. Influence of color centers on the dislocation charge in alkali halides (1) 40*f*.

Siethoff, H. See Kuehnel, A.

Siffert, B., Guigue, O., and Wey, Raymond Insoluble mineral salt-vermiculite complexes. Preparation and properties (3) 89*e*.

Sigalas, I. See Simopoulos, A.

Sigurd, D. See Turos, A.

Sikula, J., Koktavy, B., Kratena, L., and Misek, J. Stochastic phenomena in epitaxial *p-n* junctions in GaP (5) 145*d*.

Silalnikas, V. See Malinauskas, Z.

Silelka, A. See Kavaliauskas, J.

Silena, E. K. See Bryukner, F.

Sillem, H. See Funke, G.

Sillem, H., and Seebach, H. M. v. Determination of the flow behavior of powdered materials (7) 150*f*.

Silverman, B. D. See Mehta, R. R.

Silverstone, Calvin E., and Noble, David S. Regenerative heat exchanger matrix, P (3) 70*i*.

Silvestri, V. J., Sedgwick, Thomas O., and Landermann, J. B. Vapor growth of $Bi_{12}GeO_{20}$, γ-Bi_2O_3, and BiOCl (1) 47*j*.

Simanovskii, B. A. See Kuznetsov, Yu. D. ; Lazovskii, V. A.

Simatupang, M. H. Characterization of the admixtures for cement by gel chromatography (5) 98*a*. See Broeker, F. W.

Simhan, Krishna Vapor desposition nozzle, P (7) 175*c*.

Simmers, Charles D. See Hahn, William P.

Simmons, J. G., and Nadkarni, G. S. Nonsteady-state phenomena in defect thin-film metal-insulator-metal systems containing Schottky barriers (7) 171*c*.

Simms, Robert A. Changing the tint of a photochromic material, P (3) 60*c*.

Simon, F. F. Comparative performance of 23 types of flat plate solar energy collectors (7) 177*i*.

Simon, Gyula Operating experiences with Lepol- and Dopol-system kilns at the Danube cement plant (5) 100*h*.

Simon, J., Beatty, C. L., and Karasz, F. E. Differential scanning calorimetry study of the effect of irradiation on the glass transition temp. (T_g) of polyethylene (3) 56*i*.

Simonov, K. V. See Bugaev, N. F. ; Cherepov, P. V.

Simonov, K. V., Bocharov, L. D., Kukushkin, A. P., and Shubin, G. A. Wear of MgO plates during the nonbottom-pour casting of steel (5) 121*j*.

Simonov, K. V., Luzin, A. G., Mezentseva, A. N., and Alfeeva, V. G. Improvement in the grinding of a mixture of chromite and sintered magnesite in tube mills (3) 78*e*.

Simonov, K. V., Luzin, A. G., Mitin, V. P., and Klimov, V. V. Movement pattern of magnesite in rotary kilns (1) 18*i*.

Simonov, K. V., Osipova, L. Ya., Bocharov, L. D., and Marants, A. G. Production of fused periclase-chromite material from magnesite powders and chromite ores (1) 18*f*.

Simonov, K. V., and Shubin, G. A. Impregnation of refractory slabs with C-containing materials for stopperless casting of steel (9) 210*b*.

Simonov, K. V., Shubin, G. A., Bocharov, L. D., and Kukushkin, A. P. Service conditions of MgO nozzles and headers during stopper-free steel teeming (9) 211*g*.

Simon-Vermot, Andre, and Hofer, Eric M. [Glass-ceramic] watch dials, P (9) 204*i*.

Simopoulos, A., Kostikas, A., Sigalas, I., and Gangas, N. H. Moessbauer study of transformation induced in clay by firing (7) 184*d*.

Simpson, A., and Stuckes, Audrey D. Thermal conductivity of [isotropic] and hot-pressed BN (7) 166*a*.

Simpson, J. R. See Wonsiewicz, B. C.

Simpson, James L. See Roy, Prodyot

Simpson, L. A., Hsu, T. R., and Merrett, G. Application of the single-edge notched beam to fracture toughness testing of ceramics (7) 175*g*.

Simpson, L. A., Ritchie, I. G., and Lloyd, D. J. Cause of the discrepancy resulting from testing methods in the relation of grain size and fracture energy in Al_2O_3 (3) 84*h*.

Simpson, W. Calumite slag as a glassmaking raw material for the increase of furnace productivity (9) 199*j*.

Simsa, Z. See Smetana, Z.

Sines, George Rationalized crack growth and time-to-fracture of brittle materials (9) 238*g*. See Adams, Marc

Singh, A. N. See Mehrotra, C. L.

Singh, H. See Sharma, B. B.

Singh, K. See Rai, B. P.

Singh, N. B. Influence of Ca gluconate with $CaCl_2$ or glucose on the hydration of cements (5) 100*j*; System Ca_3Si-O_5-Tl_2CO_3-H_2O (9) 197*c*.

Singh, R. N. Compatibility of ceramics with liquid Na and Li (5) 136*c*.

Singh, R. N., and Coble, R. L. Dynamic dislocation behavior in Fe-doped MgO crystals (9) 230*b*; Dynamic dislocation behavior in "pure" MgO single crystals (9) 230*c*.

Singh, R. P., and Srivastava, B. N. Moessbauer studies of $ZnMn_{1-x}Cr_xFeO_4$ spinels (1) 42*h*.

Singh, S. P., and Agarwal, A. K. Convolution of surface waves in material with strain-dependent dielectric constants (5) 136*i*.

Singh, V. K., and Narsimhan, M. D. Sintering of tricalcium aluminate (9) 239*f*.

Singhal, Subhash C. Effect of alumina content on the oxidation of hot-pressed SiC (1) 37*g*.

Singhal, Subhash C., and Lange, F. F. Effect of water vapor on the oxidation of hot-pressed Si_3N_4 and SiC (3) 86*h*.

Singleton, Frank H., and Bruce, Jack W. Treatment of cement kiln flue dust, P (5) 102*g*.

Singru, R. M. Nuclear methods for the determination of electron momentum densities in solids (9) 223*h*.

Sinha, A. K. See Mitra, S. K.

Sinha, A. K., and Smith, T. E. Kinetics of WSi_2 formation in the thin-film system W/PiS/Si (7) 183*a*.

Sinha, A. P. B., Chandrashekhar, G. V., and Honig, J. M. Mechanism of electronic transport in Cr-doped V_2O_3 (7) 183*j*.

Sinha, Asbok K. Use of trapped H for annealing MOS devices, P (3) 77*a*.

Sinha, B. C. Silicate analysis by atomic absorption spectrophotometry (3) 80*h*.

Sinha, B. C., and Dasgupta, S. Spectrophotometric determination of traces of Ti in silicates (3) 81*a*; Critical study of the alkalimetric titration of mannitoboric acid complex in relation to the determination of B in glass and related materials (9) 199*d*.

Sinha, B. K., and Tiersten, H. F. Elastic and piezoelectric surface waves guided by thin films (7) 181*a*.

Sinha, B. P., and Hendry, A. W. Tensile strength of brickwork specimens (5) 115*g*.

Sinha, B. P., Maurenbrecher, A. H. P., and Hendry A. W. Investigation into the behavior of a 5-story cavity wall structure (5) 114*g*.

Sinyakov, E. V. See Gene, V. V.

Sinyukhin, A. V. See Bulanov, V. Ya.

Siratori, Kiiti See Kaji, Gentaro

Sirvaitis, A. See Jakimavicius, J.

Siskens, C. A. M., and Stevels, J. M. Surface layers of crystalline and vitreous silicates in alkaline solution (7) 187*b*.

Sitek, George J., and Berk, Charles W. Crucible, P (1) 21*i*.

Sitenko, T. N., Tyaguiskii, I. P., Lyashenko, V. I., and Lisenko V. S. Role of surface band bending in residual conductivity formation in epitaxial GaAs films (9) 238*d*.

Sitnik, N. P., Babich, A. V., Voloshchenko, A. A., and Maslennikov, V. S. Manufacture of ceramic articles of complex shapes (5) 123*g*.

Sittig, Marshall Pollution Control in the Asbestos, Cement, Glass, and Allied Mineral Industries, B (3) 95*b*; Resource Recovery and Recycling Handbook of Industrial Wastes, B (3) 96*h*.

Sivchikova, M. G. See Dolin, A. I.

Sivova, R. See Kukusheva, M.

Sizenko, A. S. See Pryadko, V. M. ; Usatikov, I. F.

Sizonenko, A. P. See Shevyakov, A. M.

Sizov, V. I. See Bas'yas, I. P.

Sizova, N. V. See Berul, S. I.

Skalny, Jan See Tadros, M. E.

Skalny, Jan, and Odler, Ivan Pore structure determination, by N and water vapor, of $CaSiO_3$ hydrates formed under various conditions (5) 101*b*.

Skarendahl, Ake Fibrous concrete—production methods, properties, and use (7) 151*c*.

Skinner, Dennis E. See Davies, John

Sklyarov, A. V., Voelter, J., and Tret'yakov, I. I. Importance of the adsorbed layer in the mechanism of the catalytic oxidation of CO on Pt (1) 40*e*.

Skoblinskaya, N. N., and Krasil'nikov, K. G. Changes in crystal structure of ettringite on dehydration: I (7) 150*d*.

Skoblo, L. I. Approximation of phase diagrams of binary and ternary condensed eutectic systems (3) 84*i*.

Skomorovskaya, L. A. See Kukolev, G. V.

Skomorowska, J., and Swiecki, Z. Crystalline glazes containing Ti and W (1) 22*j*.

Skovajsa, L., and Dolezel, V. Methods for study and improvement of gunning refractories—perfection of the technique and technology of gunning these materials on the linings (3) 66*i*.

Skrabek, Emanuel A., and Trimmer, Donald S. Thermoelectric device including an alloy of GeTe and $AgSbTe_2$ as the p-type element, P (7) 173*j*.

Skrinska, A. Ju. See Miljukas, E. I.

Skrzynecka, I. See Barcz, A.

Skucas, J. See Dagys, M.

Slabyshev, G. M. See Khigerovich, M. I.

Sladek, R. J. See Bennett, J. G.

Sladkov, A. S., and Islamov, T. I. Efficiency of grinding of soft mineral raw materials in a rotary mixer mill (9) 221*b*.

Sladky, P. Anelastic relaxations in AgCl containing cationic impurities (1) 35*h*.

Slagter, J. C. See deHaas, G. D.

Slattery, J. E. See Goldstein, L. F.

Slattery, J. E., Thompson, J. S., and Schroeder, J. B. Thermal pulse damage thresholds in CdTe (3) 59*e*.

Slattery, William J. (Editor) Index of U. S. voluntary trade standards, Supplement 2 (1) 48*d*.

Slaughter, J., Kerrick, D. M., and Wall, V. J. Experimental and thermodynamic study of equilibria in the system CaO-MgO-SiO_2-H_2O-CO_2 (5) 139*b*.

Slawkow, Jozef See Sulikowski, Jerzy

Sleight, A. W. See Birchall, T.

Sleight, Arthur W. Superconductive Ba-Pb-Bi oxides, P (5) 128*f*.

Sleight, Arthur W., Gillson, J. L., Weiher, J. F., and Bindloss, W. Semiconductor-metal transition in $Cd_2Os_2O_7$ (7) 186*i*.

Sleptsov, S. E. See Ustimovich, A. B.

Sleptsov, V. M., Shcherbina, O. D., and Trunov, G. V. Removal of binder from Si_3N_4 specimens (3) 68*e*.

Sleptsov, V. S., Finkel'shtein, I. M., Korol, E. A., and Mikonenko, V. G. Production and properties of spheroidized refractory compound powders for plasma spraying (3) 67*d*.

Slepushenko, V. P. See Mchedlov-Petrosyan, Otar P.

Slipchenko, G. F. See Cherkinskii, Yu. S.

Sliva, Daniel E., Krutchen, Charles M., and Shade, Ray W. Graphite fiber and ribbon, P (1) 21*c*.

Slivka, V. Yu. See Golobach, I. I.

Sloan, M. See Curtin, W. G.

Slob, Arie See Schmitz, Albert

Slobodin, B. V. See Kusel'man, I. I.

Slodzian, Georges See Morrison, George H.

Slonaker, John F. Fly ash experiments for brick production (1) 15*c*.

Slovyanskikh, V. K. See Ellert, G. V.

Slupe, Adrian Optical test methods for drawn window glass (5) 108*f*.

Slyavyanskii, V. T. See Koryavin, A. A.

Smailov, S. S., and Eremenko, S. F. Flow sheet for the manufacture of flat asbestos cement slabs (9) 195*b*.

Small, Leonard J. See O'Connor, Joseph R.

Smay, Gary L., VanCaporali, Ronald, and Southwick, Russell

D. Applying an inorganic Ti coating to a glass surface, P (5) 111*c*.
Smerak, Jaro New brick size—or sizes (3) 63*e*.
Smetana, Z. See Sechovsky, V.
Smetana, Z., Houdek, V., Menovsky, A., and Simsa, Z. Electrical resistivity of UGa and UGa_2 (3) 87*c*.
Smetana, Z., Sechovsky, V., and Menovsky, A. Neutron diffraction study of U_3Sb_4 (1) 42*a*.
Smirnov, A. I. See Prozorova, L. A.
Smirnov, E. I. See Baiburt, L. G.
Smirnov, N. S. Thermodynamic aspects of enamel coating properties improvement (5) 103*g*.
Smirnov, R. G. See Ivanova, V. M.
Smirnov, V. V. See Komarov, Yu. T.
Smirnov, Yu. M. See Dolivo-Dobrovol'skaya, G. I. ; Mirkin, I. K.
Smirnova, I. V. See Belov, S. F.
Smirnova, O. M. See Keshishyan, T. N.
Smirnova, T. P., Danilovich, V. S., Ayupov, B. M., and Kuznetsov, F. A. Mechanism of thermal oxidation of Si (9) 235*c*.
Smirnyi, V. V., Delarova, N. I., Ryabov, A. N., and Dubrovina, E. P. Preparation of refractories from pure refractory oxides and their compounds by gas-flame sputtering (9) 211*a*.
Smith, Anthony See Romanski, Andrzej A. F.
Smith, C. F., Jr., Condrate, R. A., Sr., and Votava, W. E. Difference infrared spectra of Ti-containing vitreous SiO_2 (3) 86*a*.
Smith, Charles L. See Minnick, Leonard J.
Smith, Colin See Brooke, Peter H.
Smith, D. G., and Chowdary, M. Fracture toughness of slip-cast fused SiO_2 (1) 17*h*.
Smith, D. H., Hagedorn, F. B., and Hewitt, B. S. Controlled adjustment of bubble domain parameters in epitaxial garnet films by thermal annealing (7) 180*f*.
Smith, Dennis W. See Brydges, William T., III
Smith, Donald R. Curable decorating systems for glass or metal containers, P (1) 14*b*.
Smith, Geraldine, Heid, Nancy, Voedisch, Virginia, and Bonham, Jeanne (Editors) Indexes to The American Ceramic Society *Journal and Ceramic Bulletin, 1956–1970*, B (3) 94*c*.
Smith, J. V. Feldspar Minerals: Vol. 1, Physical Properties; Vol. 2, Chemical and Textural Properties, B (1) 48*h*. See Mortier, W. J.
Smith, J. W. See Layton, M. M.
Smith, Joe H. Apparatus for lining a furnace, P (9) 212*c*.
Smith, John H. See Ziegenhain, William C.
Smith, Merton L. See Strack, Richard R.
Smith, P. Kent See Rankin, D. Thomas
Smith, Paul R. See Horton, Arthur E.
Smith, Peter W. Optical fiber ribbon, P (3) 61*j*. See Bisbee, D. L. ; Chinnock, Edwin L. ; Gloge, Detlef C.
Smith, Peter W., Bisbee, D. L., Gloge, Detlef C., and Chinnock, Edwin L. Molded-plastic technique for connecting and splicing optical-fiber tapes and cables (5) 108*a*.
Smith, R. B. See Dalgoutte, D. G.
Smith, R. G. Moisture expansion of structural ceramics: IV, Expansion of unrestrained Fletton brickwork (3) 63*c*.
Smith, R. J. A. See Rose, M. E.
Smith, Randolph O. See Chapman, John H.
Smith, Robert K. See Guile, Donald L.
Smith, Robert L. See Bosio, Nivaldo J.
Smith, T. E. See Sinha, A. K.
Smith, W. D. Memory and display applications for PLZT ceramics (7) 171*i*.
Smith, Warren H., Taylor, William L., and Turner, Harold L. Encapsulated thermonuclear fuel particles, P (9) 221*b*.
Smith, William D. See Economy, James
Smith, William E. See Vergano, Peter J.
Smits, Robyn See Mackenzie, K. J. D.
Smolarska, Ewa See Pampuch, Roman
Smolders, Armand See Flipot, Alfred J.
Smolinska, Kazimiera Influence of Fe compounds on the properties of electroinsulating cordierite-type materials (3) 71*f*.
Smolya, A. V. See Belyaev, R. A.
Smolyakov, L. I., and Oleinik, V. I. Effective shielding of radioactive sources with refractories (9) 209*a*.
Smoot, Thomas W. See Dickey, Clarence A.
Smushkevich, V. Z. See Frantsevich, I. N.
Smyth, Desmond P. R. See Dakin, Gerald F., Jr.
Smyth, Jay R., Bradt, R. C., and Hoke, J. H. Transformational superplasticity in the Bi_2O_3-Sm_2O_3 eutectoid system (1) 47*g*.
Snezhko, V. D. See Bondarev, Konstantin T. ; Galdina, N. M.
Snitzer, Elias See Deeg, Emil W.
Snow, Gary S., and Wilcox, Paul D. Ceramic-to-metal seal, P (7) 172*j*.
Snow, Jerry D. Electrostatic deposition of dry ceramic powders, P (5) 103*j*.
Snow, R. B. Classificaton and use of C brick or block in blast furnace linings (5) 116*d*.
Snyder, Allan W. See Pask, Colin
Snyder, Harry C., Jr. Ga oxide, P (1) 34*h*.
Snyder, Herbert C. See Poole, James P.
Soares, Carlos A. M. See DeMenezes, Ivan
Sobajima, Shigenobu, Tamura, Minoru, Azuma, Yoichi, and Takekata, Kiyoshi Electrically insulating powdery material and thermally conducting and electrically insulating filled resin composition using it as filler, P (7) 172*c*.
Sobol, A. A. See Voron'ko, Yu. K.
Sobolev, I. K. See Vinogradov, N. P.
Sobolev, V. L. See Bar'yakhtar, V. G.
Soboleva, K. L. See Bernei, I. I.
Soboleva, T. R., Naumova, M. S., Mechev, V. V., and Shamro, E. A. Reaction of refractories with melts from Cu smelter production (3) 67*b*.
Soda, Kazuya, and Miwa, Naoto High-temp. thermistor, P (9) 219*a*.
Sodieka, A See Viscakas, J.
Sofer, George A. Increasing the burnup capability of boiling-water nuclear reactors containing Pu-bearing fuel assemblies, P (3) 78*g*.
Soga, Naohiro See Matusita, Kazumasa ; Schreiber, Edward
Sokhovich, E. V. See Toropov, A. N.
Sokolina, E. A. Effect of preliminary firing on the properties of eucryptite ceramics (1) 23*d*.
Sokol'nikova, A. G. See Takher, E. A.
Sokolov, M. I. See Bondar, Yu. D.
Sokolov, V. A. See Mirkin, L. V. ; Stepanova, N. D.
Sokolov, V. I. See Belov, K. P. ; Kushev, D. B.
Sokolov, V. N. See Kochelap, V. A.
Sokolov, V. V. See Kravchenko, L. Kh.
Sokolov, Yu. A. See Novikov, G. V.
Sokolova, N. I. See Entelis, F. S.
Sokolova, T. E. See Kravchenko, L. Kh.
Sokolova, V. P. See Laptev, V. I. ; Pchelyakov, K. A.
Sokolovich, V. E. Rapid determination of the SiO_2 modulus of an Na silicate solution (9) 223*b*.
Solacolu, S., Barbulescu, Eva, Barb, D., and Morariu, M. Polymorphic transformations in the $BaTiO_3$-$BaSnO_3$ system revealed by Moessbauer effect (3) 90*e*.
Soldavini, Heinz See Beyersdorfer, Kurt
Solinov, E. F. See Firsov, V. M.
Soljic, Z., and Grba, V. Properties of synthetic zeolites A and X and amorphous aluminosilicate hydrates in relation to their application as adsorbents and as thin layers in the acid medium (7) 185*c*.
Solmecke, Rolf See Bollmohr, Hermann
Solokha, A. F. See Vinogradov, E. E.
Solomatina, T. V. See Polyakov, S. A.
Solomatov, V. I., Glagoleva, L. M., and Aradovskaya, E. M. Keramzit concrete with a low consumption of cement (9) 195*j*.
Solomin, N. V. Temp.-viscosity factors in controlling the thermal stability of glass, vitrocrystalline materials, and ceramics (9) 203*c*.
Solomon, D. E. See Nolen, R. L., Jr.
Solomon, D. E., and Henderson, T. M. Laser fusion targets (1) 9*b*.
Solov'ev, N. N. Improved labor conditions and accident prevention at the Krivorog cement plant (5) 100*d*.
Solov'ev, V. V. See Pakharukov, N. M.
Solovushkova, G. E., Schmitt-Fogelevich, S. P., Melnikova, G. G., and Romanenko, L. I. Use of phosphate binders in refractories for steel teeming (9) 212*h*.
Solymar, Karoly, Zambo, Janos, Orban, Maria, and Bujdoso, Erno Processing bauxites, P (7) 179*a*.
Sombret, C. See Bonniaud, R.
Somers, Arthur V., Berg, Morris, and Shukle, Archie A. Cordierite refractory compositions, P (9) 213*a*.
Somiya, Shigeyuki See Hirano, Shinichi ; Nakamura, Kazuo Sugai, Mikio
Sommer, H., Cuenod, M., and Thibaud, D. Homogenizing the lime content of raw meal (5) 99*j*.
Sommer, Ronald G., and Cater, E. David Solid-state galvanic cell study of the Ti_2O_3, Ti_3O_5 equilibrium (3) 91*j*.
Sommer, Sheldon Effect of staining on microprobe determination of Fe in carbonates (1) 32*h*.
Sommer, W. Different weighing systems for various purposes (3) 78*c*.
Somorjai, G. See McCaldin, J. O.
Sonsini, Giovanni See Goggi, Francesco
Sopp, Samuel W. See Lee, Leonard S.
Sorg, R. L. See Vary, Alex
Sorge, G. See Schmidt, G.
Soria, J. A. See Gonzalez de Prado, J. E.
Sorochkin, M. A., Shchurov, A. F., and Safonov, I. A. Possible use of CO_2 to accelerate hardening of portland cement-based products (3) 52*b*.
Soroka, Itzhak, and Stern, Nava Effect of calcareous fillers on sulfate resistance of portland cement (9) 194*c*.
Sorokin, I. N. See Perepelitsyn, V. A.
Sorokin, L. M. See Prokhorov, V. I.
Sorokin, O. V. See Kovalev, N. N.
Sorokin, V. K. See Palatnik, L. S.
Sorokin, V. N., Grebenkina, V. G., Yusov, Yu. P., and Perevezentsev, B. V. Hot-pressing of vol variable resistors (3) 73*f*.
Sorrell, Charles A., and Armstrong, Charles R. Reactions and equilibria in Mg oxychloride cements (3) 53*a*.
Sorrentino, F. P., and Glasser, F. P. System CaO-Fe_2O_3-Al_2O_3-SiO_2: I, Pseudoternary section $Ca_2Fe_2O_5$-$Ca_2Al_2O_5$-SiO_2 (7) 187*f*.
Sortwell, Edwin T., and Kerr, David S. System for handling and applying a nonsuspended refractory slurry, P (7) 168*a*.
Sorvina, V. P. See Uskov, V. A.
Sosnovskii, L. A. See Borisova, A. L.
Sosova, I. A. See Petrova, V. Z.
Sotnikova, M. N. See Varfolomeev, M. B.
Sotter, W. A. See Gruver, Robert M. ; Kirchner, Henry P.
Southwell, B. C. Making ceramic tiles (7) 149*c*.
Southwick, Russell D. See Smay, Gary L.
Sowman, Harold G. See Howard, Robert N.
Spaeth, Werner See Wenzig, Wolfgang
Spann, Joseph R. See Walker, Basil E., Jr.
Spanoudis, Louis Laser assemblies using glass disks with Pb borate coatings, P (7) 162*e*.
Sparlin, Derry D., and Starks, Charles M. High-strength silicate foam, P (9) 197*b*.
Speakman, K. See Larner, L. J.
Speed, A. R., Garlick, G. F. J., and Hagston, W. E. Phonon-assisted energy migration between rare-earth ions in glasses (3) 58*a*.
Speerschneider, Charles J. See Maciolek, Ralph B.
Speight, J. D., and Cooper, K. Interlayer diffusion phenomena in Ti-Au metallizations on *n*-type GaAs at 250–450°C (3) 74*a*.
Spektor, V. N. See Andrianov, K. A.
Spencer, Denzil R. F. See Ball, Nigel
Spener, Gerhard See Rachor, Lothar
Spenke, S. See Segsa, K. H.
Sperlich, G. d-electrons in crystalline and amorphous V_2O_5 and MoO_3 compounds (7) 180*f*.
Speronello, Barry K. See Rice, Roy W.
Spicer, William E. See Johannessen, J. S.
Spicuzza, William F. See Moss, Robert H.
Spielhagen, U. Importance of environmental protection and work safety in the planning and operation of the Readymix cement plant at Beckum (5) 100*c*.
Spiga, A. See Aresti, A.
Spillman, Jane Shadel Glassmaking—America's First Industry, B (7) 190*e*.
Spincic, Johann See Broemer, Heinz
Spink, K. Energy considerations in grinding and crushing (1) 30*h*.
Spiotta, Raymond H. Abrasive flow machining wipes out burrs, improves surfaces, maintains tolerances (5) 97*a*.
Spirin, Yu. A. See Torgashov, V. V.
Spirina, V. S., and Flerova, M. I. Heat-insulating material prepared from expanded vermiculite (3) 65*b*.
Spirina, V. S., Gemmerling, G. V., and Akhtyamov, Ya. A. Production technology of ceramic-vermiculite bodies (9) 211*g*.
Spirko, E. J. See Perko, J. F.
Spitz, J. See Hertz, D.
Spitz, Robert T. See Keller, Joseph A.
Spitzer, W. G. See Kachare, A. H.
Spitzer-Aronson, Martha Investigation of red medieval stained glasses by light microscopy, scanning microscopy with backscattered electrons, and X-ray emission microprobe analysis (1) 1*f*.
Spivak, I. I. See Belousenko, A. P.
Spivak, I. I., Andrievskii, R. A., Klimenko, V. V., and Lazarenko, V. D. Creep in the binary systems TiB_2-TiC and ZrB_2-ZrN (1) 36*g*.
Spivak, I. I., and Klimenko, V. V. Densification kinetics in the hot-pressing and recrystallization of carbides (1) 16*i*.
Spiwak, John J. See Toeniskoetter, Richard H.
Splittgerber, H. Disjoining pressure between solids and implications for technical problems (7) 150*j*.
Sporrer, Ludwig Mounting device for [semiconductor] crystalline rods, P (1) 14*j*; Apparatus for doping semiconductor rods during floating zone melt processing thereof, P (3) 75*j*.
Sposobnyi, V. V. See Grankovskii, I. G.
Spriggs, Richard M. Hot-pressing in the technology of electronic ceramic materials (3) 73*e*. See Notis, M. R.
Sproul, M. E. See Nassibian, A. G.
Sprunck, Emile Method of reducing the rate of wear of refractory walls, P (5) 122*d*.
Sprung, Siegbert See Locher, Friedrich Wilhelm
Srinivasan, G. R., Sarkar, A., Gupta, P. K., and Macedo, P. B. Electron microscope observations of phase separation near spinodal boundary in a Na borosilicate glass (7) 156*e*.
Srinivasan, T. N. See Walvekar, S. P.
Srivastava, B. N. See Singh, R. P.
Srivastava, P. C. See Bardhan, A. Roy
Srivastava, R. S. See Rai, B. P.
Srivastava, Ramji See Krishnaji
Srivastava, S. K. See Dixit, P. N.
Srivastava, S. K., Rao, B. Rama, and Razdan, Pushpati Polymorphism of R_2O_3.WO_3 (R = rare earth) compounds at high temps. (7) 185*c*.
Srour, J. R. See Curtis, O. L., Jr.
Staaden, Hans See Kaes, Hans Herbert
Stadelmaier, Hans H., Shugart, James C., Kotyk, Michael, and Fiedler, Maria-Luise Composition of the cubic nitride in the Ni-Ta-N system (9) 227*e*.
Stadnik, B. Ya., and Zelinskii, O. V. Determination of sorption properties of Ti enamels by gas chromatography (9) 197*j*.
Stadnik, Marianna See Ujima, Janina
Staebler, D. L. Oxide optical memories—photochromism and index change (7) 159*a*.
Staff, C. B. See Korczak, P.
Stagni, L. Carrier lifetime and surface recombination in the laser-induced damage of semiconductors (3) 72*c*.
Stahl, William F. Ceramic turbine rotor disk and blade configuration, P (1) 21*c*.
Staiger, E. H., Gutmann, R. J., and Borrego, J. M. High *E*-field microwave properties of bulk amorphous semiconductors (1) 39*j*.
Stalego, Charles J. Stream feeder for making glass fibers, P (3) 62*g*; Glass fiber stream feeder, P (5) 112*f*.
Stalioraitis, K. See Levitas, I.
Stamenov, St., Ivanova, M., Karapchanski, N., and Dyakova, V. Production of concrete-polymer mixtures with high technical indexes under ionizing radiation (3) 52*e*.

Stan, Miorica See Lucaci, Illeana

Stanchev, A. See Ikonopisov, S.

Stanchev, A., and Vodenicharov, C. Kinetics of vacuum deposition of GeS films (1) 26*d*.

Standley, R. D., and Holden, W. S. Experimental results on a single-material optical fiber (5) 106*d*.

Stanek, Jaroslav Problems of modern glassmelting and fabrication technology (1) 10*i*.

Stanescu, L., Ardelean, I., Peteanu, M., and Kovacs, C. Electronic and structural properties of V_2O_5-based semiconducting glasses—correlation with catalytic activity (1) 8*a*.

Stanilov, B. E. See Rakina, V. P.

Stanilov, B. E., Primachenko, V. V., Nemets, I. I., and Semchenko, G. D. Use of bentonites in mfg. dense kaolin bodies (1) 20*b*.

Stanislavskii, L. Ya. See Krasnomovets, A. V.

Stankevicius, M. See Bertulis, K.

Stanley, Donald F. See Alderson, John V.

Starks, Charles M. See Sparlin, Derry D.

Starshinov, B. N. See Bakalkin, A. P.

Starun, V. E. Relation between geological exploration and mineral output (1) 3*d*.

Stary, J. See Neumann, H.

Stas, M. N. See Batsanov, S. S.

Stassen, William N. See Chase Kenneth P.

Staudte, M. See Neumann, H.

Stearns, Carl A. See Fryburg, George C.

Stearns, Carl A., Kohl, Fred J., and Fryburg, George C. Oxidative vaporization kinetics of Cr_2O_3 in O from 1000° to 1300°C (1) 43*c*.

Stec, Roman See Ujima, Janina

Stecura, S. See Liebert, C. H.

Stedham, M. E. C. Competition from plastics in a dear-energy environment (3) 81*i*.

Steele, Bernard R. Ceramic nuclear fuel of low density, P (9) 220*i*.

Steele, Edward A. How the USA monitors toxic metal release (9) 222*j*.

Steele, F. Montgomery Augering with a big bore (1) 30*d*.

Steensma, J. J. See Kuehnel, R. A.

Stefchev, P. Resistance of concrete made from Bulgarian cements under complex corrosive conditions (9) 196*b*.

Steflea, M., and Bunget, I. Influence of Co substitution on the electrical transport in several Ni-Zn ferrites (7) 182*g*.

Steflea, M., Bunget, I., and Raican, A. Magnetic relaxation in Co-doped Ni-Zn ferrites (9) 234*f*.

Stegeman, G. I. See Goruk, W. S.

Steiger, Roger A., and Cater, E. DAvid Vaporization, thermodynamics, and dissociation energy of YS (5) 147*a*.

Stein, Charles See Murr, Lawrence E.

Stein, D. F. See Johnson, W. C.

Stein, Karl U. Compensating boundary charges in Si thin layers epitaxially grown on a substrate, P (3) 76*e*.

Steinberg, I. H. See Jones, Robert A.

Steinbiss, E. Testing the service properties of adhesives for rotary kiln refractory bricks (5) 102*e*.

Steiner, W. See Groessinger, R.

Steinhausen, Helmut See Kulling, Achim

Steinke, Guenther Unconventional glassmelting method (5) 111*a*.

Steitz, William R. See Hibscher, Carl W.

Stemme, Reiner See Leuenberger, Hans U.

Stengle, Edward J., Jr. Glass gob shearing apparatus, P (9) 205*d*.

Stenin, S. I. See Aseev, A. L.

Stepanchuk, A. N. See Samsonov, G. V.

Stepanchuk, A. N., Trukhan, S. G., and Shlyuko, V. Ya. Resistance to oxidation in air of molten Ti and Zr carbides in their homogeneity region (3) 68*f*.

Stepanov, V. S., Sidorov, N. A., and Shipilov, P. A. Vibration-grading of clay suspensions in the production of vitreous floor tiles (9) 207*f*.

Stepanov, Vasily A. See Vereshchagin, Leonid F.

Stepanova, I. A. See Bron, V. A. ; Gurkovskii, E. V.

Stepanova, N. D., Kalinkin, I. P., and Sokolov, V. A. Oxidation of ZnSe in air (5) 143*g*.

Stepanova, N. S., and Belyustin, A. V. Cracking of K dihydrophosphate crystals which contain colloid inclusions (9) 228*f*.

Stepanova, N. V. See Gurkovskii, E. V.

Stepashkina, T. A. See Aivazov, M. I.

Stephanoff, Nicholas N. Drying mill for wet granular material, P (3) 79*e*; Nonclogging centrifugal drying mill, P (9) 222*b*.

Stephens, Ruth E. Exhaust gas catalyst support, P (1) 24*c*.

Stephenson, D. A. See Binkowski, N. J.

Stepien, H. K. See Gandhi, Haren S.

Sterk, E. Processes during the tempering of single crystals of YIG (9) 218*i*.

Stern, Leif E. Abrasive disk, P (5) 97*e*.

Stern, Nava See Soroka, Itzhak

Sternberg, S., and Petrescu, Valeria Overvoltage in Cl discharge on graphite electrode in AgCl-KCl molten mixture at various temps. (400–700°) (3) 90*e*.

Sternberg, S., and Terzi, Mariana Surface tension of reciprocal fused salt pairs(Na, K;Cl,Br) and (K,Rb;Cl,Br) (3) 92*b*.

Sternberk, J., Menovsky, A., Svec, T., and Zentko, Anton Temp. and field dependence of the magnetic susceptibility of UGa (1) 47*b*.

Stetson, Wendell J. See Kennison, Robert E.

Stetter, W. See Schoenherr, E.

Steube, Kenneth E. Glow discharge-tumbling vapor deposition apparatus, P (5) 127*b*.

Steuler, N. Kiln truck structures, P (7) 178*a*.

Stevels, J. M. See Konijnendijk, L. ; Siskens, C. A. M. ; vanAss, H. M. J. M. ; vanGemert, W. J. Th. ; Vreeswijk, J. C. A.

Steven, Josef Device for detecting defective nuclear reactor fuel rods, P (7) 174*g*.

Stevens, J. R. See Huang, Y. Y.

Stevens, R. J. See Pitt, C. W.

Stevens, Richard See Mitchell, Richard

Stevenson, David M. See Hanak, Joseph J.

Steventon, A. G. Some aspects of reliability in amorphous chalcogenide memory switches (3) 75*d*.

Stewart, Clive E. E. Radio-frequency preparation of pure glass, P (5) 113*i*.

Stewart, I. McC. See Cutting, R. D.

Stewart, R. W. See Wills, R. R.

Stewart, W. Approach to torpedo ladle linings (3) 64*a*.

Stierli, Robert F., Tarver, Clayton C., and Gaidis, James M. Mg phosphate concrete compositions, P (9) 197*c*.

Stiles, S. L. See Scott, H. J.

Stilley, George W. Glass sheet tempering, P (3) 61*f*.

Stinton, David P., and Brown, Jesse J., Jr. Phase equilibria in the system LiF-AlF_3-Na_3AlF_6 (7) 184*f*.

St.John, Douglas F. Removing gaseous inclusions from molten glass, P (7) 162*h*.

Stoch, Leszek Clay Minerals (Mineraly Ilaste), B (3) 93*f*; Thermal analysis as a method of studying solid-phase reaction kinetics (5) 132*g*.

Stochek, L. G. See Markelov, B. G.

Stockdale, George F. Embossing a pattern in glass, P (9) 204*e*.

Stoddart, C. T. H. See Chappell, R. A.

Stoebe, T. G., and Watanabe, S. Thermoluminescence and lattice defects in LiF (5) 146*f*.

Stoeckler, H. A. See Fuller, Peter G.

Stoetzel, H. See Leimer F.

Stoever, D. See Roehrig, H. D.

Stoher, Guenter See Kratel, Guenter

Stoichev, E. See Vachev, D.

Stoicheva, V., Vodenicharov, M., and Karastoyanova, El. Increasing the mechanical strength of protective glass for eyeglasses by tempering (3) 57*c*.

Stoinov, V. See Ionchev, Khr.

Stoklosa, Andrzej See Mrowec, Stanislaw

Stoklosa, Andrzej, and Godlewski, Kazimierz Thermodynamics and kinetics of point defects in cuprous oxide (7) 188*b*.

Stoll, I. See Bardos, L.

Stone, F. S. Significance for oxide catalysis of electronic properties and structure (7) 186*i*.

Stone, Julian See Derosier, R. M.

Stone, Louis E., and Romano, Roberto Two-stage epitaxial growth of III-V semiconductor compounds, P (5) 128*h*.

Stonebouse, D. H. Canadian cement industry—a review (7) 150*b*.

Stonoga, Yu. A. See Kravchenko, L. Kh.

Stookey, Stanley D. See Bartholomew, Roger F. ; Pierson, Joseph E.

Stormont, R. W. See Cocks, F. H.

Storms, Edmund K. Atom vacancies and their effects on the properties of NbN containing C, O, or B: I, Phase boundary, thermodynamics, and lattice parameter (5) 135*a*.

Storms, H. A. See Wang, K. L.

Storozh, B. D., and Kislyi, P. S. Sintering of W-Al_2O_3 cermets in the presence of a liquid phase (1) 20*a*.

Stout, Joseph V. Novel glazing composition, P (1) 24*e*.

Stout, M. See Gerberich, W. W.

Stoyanov, N. I. See Bol'shakov, A. G.

Stoyanov, S. G., Iliev, M. N., and Stoyanova, S. P. Magnetic-order-induced band splitting in the thermomodulation spectra of the ferromagnetic semiconductor $CdCr_2Se_4$ (9) 234*d*.

Stoyanova, S. P. See Stoyanov, S. G.

Strack, Richard R., Siegmund, Walter P., and Smith, Merton L. Optical fiber, P (1) 15*a*.

Strack, Richard R., and Smith, Merton L. Improved fiber optic conduit, P (3) 61*b*.

Stradling, R. A. See Ramage, J. C.

Strakhov, V. I. See Meshalkina, N. V.

Strakhov, V. I., and Novikov, V. K. Kinetics of synthesis of Y, Nd, and Ce chromites (9) 234*g*.

Strakhov, V. I., Zhukovskaya, A. E., Saraeva, T. M., and Sergeev, G. G. Kinetics of synthesis of $NdAlO_3$ and $CeAlO_3$ (9) 234*f*.

Strakhov, V. I., Zhukovskaya, A. E., Sergeev, G. G., and Shmitt-Fogelevich, S. P. Reaction of stabilized ZrO_2 with SiO_2 (1) 19*i*.

Strakhov, V. M. See Avgustinik, A. I.

Strand, Tore G. H. See Markoo, Eric L.

Strangman, Thomas E., and Hopkins, Stephen W. Thermal fatigue of coated superalloys (5) 103*e*.

Strauch, A. Advantages and disadvantages of various Cr-Ni alloys for hangers, for use as tooling in an enameling plant (7) 153*f*.

Strauss, Eric L., and Kiefer, Ted F. Strength of ZrB_2 ceramics after cyclic loading or heating (1) 46*b*.

Strausser, Y. E. See Johannessen, J. S.

Strebkov, Yu. N. See Nikishin, B. I.

Streel, Dominique See Humbert, Maurice

Strelkov, M. I. See Baklanov, G. M.

Strelov, K. K., Lopatinskaya, D. I., and Sarapulova, L. I. Charge of interfacial energy at the melt-mullite boundary with the introduction of surface-active agents at high temps. (1) 16*b*.

Strel'tsina, M. V. See Mazurin, O. V.

Strepetova, I. N. See Afinogenov, Yu. P.

Strezeszewski, J., and Sukiennicki, A. Theory and experiments on cross-tie walls in ferromagnetic thin film (3) 92*j*.

Strickland, Edward T. Glass fibers, P (1) 14*j*.

Strienitz, Rolf See Lorenz, Hermann

Stringer, C. R. See Reid, N. G.

Strogonov, Yu. D., and Tarasova, G. M. Production of asbestos cement bodies in Sweden (9) 196*c*.

Strojirny, Prerovske, and Podnik, Narodni Burned lime and burned dolomite production, P (9) 212*d*.

Strom, U., and Taylor, P. C. Contact-free conductivity in an inhomogeneous medium—vitreous semiconductors (9) 199*d*.

Strong, P. F. See Aronson, J. R.

Strong, Robert E. Treatment of irradiated nuclear fuel elements, P (5) 129*d*.

Stroud, R. F., and Clark, W. C. Electrical conduction in Zn-$SiAs_{2-x}P_x$ system (7) 170*h*.

Struk, L. I. See Murashko, R. E.

Strukov, B. A. See Vaks, V. G.

Strunin, B. M. See Alexeev, A. A.

Strunk, H. Cross-slip events in NaCl crystals studied by TEM (1) 36*h*.

Strusievici, Constanta See Lucaci, Illeana

Stryker, Lynden J. Producing low porosity cement, P (9) 197*d*. See Ball, Frank J.

Strzegowski, Wesley R. See Williams, J. Paul

Stubican, V. S. See Brun, M. K. ; Buljan, S. T. ; Kennard, F. L.

Stubican, V. S., and Greskovich, C. Trivalent and divalent Cr ions in spinels (5) 146*i*.

Stuckes, Audrey D. See Simpson, A.

Stuijts, A. L. See Carpay, F. M. A.

Stuijts, A. L., and deLau, J. G. M. Properties and processing of high-quality soft ferrites for various applications (3) 74*j*.

Stukalina, K. A., Rozenberg, R. G., and Berdichevskii, I. M. Use of crushed SiC products for mfg. of refractories (1) 20*b*.

Stupperich, F. R. Energy-saving measures in drying ovens and kilns (3) 62*i*.

Sturm, J., and Gruehn, R. New $LaNb_3O_9$ modification (7) 184*g*.

Sturman, V. K. See Grigor'ev, I. V. ; Karklit, A. K. ; Materikin, Yu. V.

Sturmath, Rainer See Jarchow, Friedrich G. K.

Stuve, J. M. See Ferrante, M. J.

Su, Yao-Sin See Williams, J. Paul

Subashiev, V. K. See Kushev, D. B.

Subba Rao, U. V. See Babu, V. Hari

Subochev, I. G. See Gaodu, A. N.

Subrahmanyam, A. V. Literature survey of relation between corrosion and the properties of refractories (9) 210*b*.

Subramanian, V. Origin of surface pits on quartz as revealed by SEM (1) 43*a*.

Suchan, Marian See Scislewski, Zbigniew

Suchkov, A. I. See Devyatykh, G. G.

Suckow, Adolf See Weidemueller, Christian

Sudakas, L. G. See Okorokov, S. D.

Sudakova, N. P., Mikhel'son, A. V., Krentsis, R. P., and Kalishevich, G. I. Weak ferromagnetism of Mn_5Si_3 (9) 242*d*.

Sudarkina, T. E. See Karaulov, A. G.

Sudo, Makoto See Fujie, Hideo

Sudo, S. See Kobayashi, Soichi

Sudo, Toshio See Kohyama, Norihiko

Sudovtsov, A. I. See Kuz'menko, V. M.

Sueno, Shigeho, Cameron, Maryellen, and Prewitt, Charles T. Orthoferrosilite—high-temp. crystal chemistry (7) 184*b*.

Sueptitz, P. See Lebedev, E. A.

Sueptitz, P., and Willert, I. Diffusion of Au and Ag in amorphous As_2Se_3 (1) 36*i*.

Suessmann, Erhard Epitactic precipitation of inorganic material, P (5) 127*f*.

Sufrim, Eugenia Lighting for the inspection of glass products (3) 57*i*.

Suga, Hiroshi, and Seki, Syuzo Thermodynamic investigation on glassy states of pure simple compounds (1) 47*c*.

Sugai, Mikio, Sahara, Ryotaro, Hirano, Shinichi, and Somiya, Shigeyuki Effects of the addition of TiO_2-SiO_2 and TiO_2-Al-$2O_3$ on sintering of ziron bodies (5) 138*e*; Effects of grain size on reaction and sintering between zircon and TiO_2 (7) 181*f*.

Sugaki, Asahiko, Shima, Hiromi, Kitakaze, Arashi, and Harada, H. Isothermal phase relations in the system Cu-Fe-S under hydrothermal conditions at 350° and 300°C (7) 183*f*.

Sugimae, Akiyoshi Sensitive emission spectrometric method for the analysis of airborne particulate matter (3) 80*g*.

Sugimoto, Yoshihiko See Komatsu, Noboru

Sugimura, Shuichiro See Nishikawa, Tomozo

Suginohara, Yukio See Nakamura, Takashi

Sugita, Kiyoshi Corrosion of casting pit refractories by molten steel and slag (5) 116*b*. See Katada, Tadashi

Sugita, Kiyoshi, Fukuoka, Hiromi, Nakashima, Chiyota, and Yaoi, Hideo Relation between form of SiO_2 and its reactivity with Mn in steel (3) 68*d*.

Sugita, Kiyoshi, Shimada, Kohei, and Matsuo, Masataka Properties of MgO brick used in converter lining before and after service (5) 119*c*.

Sugiyama, Akira See Ryugo, Noboru

Sugiyama, Kozoh See Motojima, Seiji

Sugiyama, Tatsuo See Takata, Masasuke

Sugiyama, Toshitomo See Irie, Toshio

Sulkovskaya, N. G. See Artyushkina, N. G.

Suits, James C. Rh and Ru compositions, P (1) 29*f*.

Sujak, B., Gieroszynski, A., and Gieroszynska, K. Kinetics of photostimulated electron exoemission from deformed thin

film systems at 100–400 K (3) 89*i*.

Sujak-Lesz, K. See Biedrzycki, K.

Sukhorukova, L. N. See Bazakutsa, V. A.

Sukhotinskii, V. L. See Petrenko, Yu. M.

Sukhushina, I. S. See Vasil'eva, I. A.

Sukiennicki, A. See Strezeszewski, J.

Sulikowski, Jerzy, and Slawkow, Jozef Dilatometry of refractory [laboratory and industrial] aluminous cements (7) 150*i*.

Sullivan John L. Ultrasonic study of the diffusion of Ag in CdSe in the temp. range 20–400°C (3) 75*h*.

Sullivan, L., and Card, H. C. Conduction in amorphous thin films of Si_3N_4 under nonuniform electric fields (1) 25*a*.

Sumarokov, V. N. See Murashko, R. E.

Sumi, Kazuyoshi See Asano, Toshiyasu

Sumita, Minoru See Nakata, Ryohei

Summerell, H. Recovering energy from stacks (7) 177*e*.

Sun, Pore-Feng, Nawy, Edward G., and Sauer, John A. Properties of epoxy-cement concrete systems (3) 52*f*.

Sunagawa, Ichiro, and Koshino, Yutaka Growth spirals on kaolin group minerals (3) 88*c*.

Sunners, Brian See Johnson, Alfred H.

Supkis, Stanley J. See Gladstone, Matthew T.

Suponitskii, Yu. L., Balashov, V. A., and Proshina, O. P. Thermodynamic properties of Li polymolybdates (5) 146*b*.

Suprunenko, P. A. See Murashko, N. I.

Suquet, H., delaCalle, C., and Pezerat, H. Swelling and structural organization of saponite (3) 92*c*.

Surat, L. L., Volkov, V. L., and Fotiev, A. A. Phase composition and phase diagram of the system V_2O_5-RbV_2O_5 (1) 43*e*.

Surdeanu, Liana See Surdeanu, Tudor

Surdeanu, Tudor, Ardelean, Ioan, and Surdeanu, Liana Superaluminous ceramic masses—electrical conductivity (7) 187*a*.

Surendorf, Friedrich New Clean Air Technical Guide [1974] and the brick and tile industry (3) 63*e*.

Suri, K. See Nath, P.

Surls, Joseph P. See Basque, Max G.

Susa, Kenzo See Kobayashi, Toshio

Sushkova, E. M. See Shtefan, G. E.

Suski, L., and Tomczyk, P. Surface tension of molten Cd iodide (7) 187*d*.

Suski, W. See Lagnier, R.

Suski, W., Wojakowski, A., and Palewski, T. Metamagnetism in the UP-USe system (1) 42*f*.

Suslikov, L. M. See Golobach, I. I.

Suter, G. T., and Hendry, A. W. Limit state shear design of reinforced brickwork beams (5) 114*j*.

Suto, Ken See Nishizawa, Junichi

Suvanto, Antti See Berglund, Ake

Suvorov, S. A. See Klyucharov, Ya. V. ; Kuznetsov, Yu. D.

Suwa, Yoshiko, Tamai, Yozo, and Naka, Shigeharu Stability of synthetic andradite at atmospheric pressure (9) 239*f*.

Suwalski, J. See Piekoszewski, J.

Suyama, Yoko See Takeuchi, Harunori

Suyama, Yoko, and Kato, Akio TiO_2 produced by vapor-phase oxygenolysis of $TiCl_4$ (5) 146*g*; Reactivity of ultrafine TiO_2 (anatase) powders wth $BaCO_3$ (9) 238*b*.

Suyama, Yoko, Ohmura, Katsuro, and Kato, Akio Formation of rutile-TiO_2 powders by vapor phase reaction (9) 232*j*.

Suzdalev, I. P. See Krupyanskii, Yu. F.

Suzdal'tsev, E. I. See Borodai, F. Ya.

Suzuki, A., Ikeda, M., Matsunami, H., and Tanaka, T. Liquid-phase epitaxial growth of 6*H* SiC by vertical dipping technique (3) 74*b*.

Suzuki, Hideyuki, Iwai, Takao, Hasegawa, Toshio, and Horie, Tyuich Thermal properties of hydrated alumina prepared by the homogeneous precipitation method (1) 47*i*.

Suzuki, Hiroshige See Hase, Teizo ; Maruyama, Tadashi ; Shindo, Isamu

Suzuki, Hiroshige, Iseki, Takayoshi, and Hase, Teizo Distribution of B in MgO clinker (1) 37*d*.

Suzuki, Hiroshige, Iseki, Takayoshi, and Osato, Yoichi Effect of impurities on stress-strain behavior of hot-pressed MgO at high temps. (7) 164*h*.

Suzuki, Junichi, Matsuda, Toru, and Katsube, Takahiro Device for grinding metallic molds and products automatically, P (7) 175*g*.

Suzuki, Katsuhiko See Minakawa, Katsuharu

Suzuki, Kazutaka See Ito, Suketoshi

Suzuki, Kazutaka, Ito, Suketoshi, and Tsusaka, Kazuhide Influences of substituted Fe and Si on the formation of Ca aluminate phaee and its hydration (3) 89*b*.

Suzuki, Kazutaka, Urakawa, Tadahiko, and Ito, Suketoshi Influences of the crystal phases of tobermorite and the temp. of heat treatment on the strength of the autoclaved specimens (1) 40*j*.

Suzuki, Kensuke, Ishizuka, Takeshi, and Sasaki, Takeshi Glass-encapsulated semiconductor device containing cylindrical stack of semiconductor pellets, P (3) 61*g*.

Suzuki, Masatosi See Kamigaito, Osami

Suzuki, Motoaki, and Muroi, Hitoshi Coating method [bottles], P (9) 204*h*.

Suzuki, Narishige, Morino, Yoshihiro, Hashiguchi, Yoshitaka, and Segawa, Tunehiro Dental cement composition, P (9) 216*j*.

Suzuki, Suguru See Kobayashi, Taneo

Suzuki, Suguru, Sanou, Muneharu, and Kobayashi, Taneo Dynamic viscoelasticity of glasses in the systems As-S and As-Se (1) 7*c*.

Suzuki, Takeyuki, and Saito, Shinroku Rate of heat liberation by crystallization as a resistance to glass forming (7) 159*i*.

Suzuki, Toshihiro Apparatus for breaking off side margin of wire glass plate, P (1) 13*a*.

Suzuki, Yoshiro, Ishiyama, Masahiko, and Chiba, Jiro Electrically insulating coating glass, P (7) 161*j*.

Suzuki, Yoshiro, Nagahara, Shigehiro, and Ichimura, Nobuyoshi Low-expansion bonding glass composite for bonding glass, ceramic, and metal articles, P (9) 205*a*.

Svec, J. J. Breakthrough in brickmaking (1) 15*b*; Coal is a tangible hedge for energy (5) 132*e*; One-high firing Yes or no (5) 133*d*. See Jeffers, P. E.

Svec, T. See Sternberk, J.

Svendor, John S., and Shintock, Eugene Sputter-coating of glass sheets, P (7) 163*b*.

Svensson, Lennart See Elmgren, Staffan

Sveshkov, Yu. V. See Materikin, Yu. V.

Svetlov, V. A., Il'chenko, V. I., and Perminov, A. A. Kinetics of interaction of Ti enamel coatings with acid solutions (9) 198*j*.

Sviridov, D. T. See Veremeichik, T. F.

Swain, Michael, Latanision, R. M., and Westwood, A. R. C. Further studies on environment-sensitive hardness and machinability of Al_2O_3 (1) 39*i*.

Swaminathan, K. S. See Mittra, S. K. ; Verma, T. N.

Swaminathan, V. See Selim, F. A.

Swaminathan, V., and Copley, S. M. Temp. and orientation dependence of plastic deformation in GaAs single crystals doped with Si, Cr, or Zn (3) 92*i*.

Swanson, Rosemarie, Martin, George W., and Feigelson, Robert S. Revised unit cell parameters for $LiVO_3$ (1) 45*h*.

Swart, Walter Pipe penetration structure for a nuclear reactor, P (1) 30*j*.

Swartz, J. C. Atm effects on wetting of Si_3N_4 by liquid Si (7) 179*h*.

Sweeney, John W., and Timmons, Bobby J. Availability and potential utilization of by-product gypsum in Florida phosphate operation (7) 178*e*.

Sweeting, Truett B., and Pask, Joseph A. Effect of processing on microstructure and mechanical behavior of MgO (7) 181*b*.

Swiecki, Z. See Skomorowska, J.

Swiecki, Zbigniew, Wala, Danuta, and Kucharska, Leokadia Physicochemical surface properties of kaolin raw materials and attempts to improve the casting properties of porcelain casting slips (7) 169*e*.

Swilam, M. N., and Gadalla, A. M. Effect of additions on the sinterability of $BaTiO_3$ (7) 170*e*; Decomposition of Ba titanyl oxalate and assessment of $BaTiO_3$ produced at various temps. (7) 180*j*.

Swindells, Frank E., and Lare, Paul J. Improved transverse strength of continuous-filament-reinforced 6061 Al alloy (3) 54*c*.

Swinehart, Carl F. See Moss, Robert H.

Swingle, Robert S., II Quantitative surface analysis by X-ray photoelectron spectroscopy (1) 33*b*.

Swyter, H. H. Step forward in prefabricated brickwork construction (3) 63*a*.

Sych, A. M., Popolitov, V. I., and Eremenko, L. A. Sb orthioniobate (1) 35*j*.

Sychev, M. M. Principles of forecasting binding properties (3) 91*c*. See Korneev, V. I. ; Rozental, O. M.

Sycheva, G. A. See Filipovich, V. N.

Sylla, H. M. Effect of clinker cooling on the setting and strength of cement (3) 51*e*.

Sylvest, Karl J. Rotary kiln with uphill cooler tubes, P (7) 178*b*.

Syritskaya, Z. M. See Bondar, A. M.

Syrkin, Ya. M., Kholodnyi, A. G., Gribko, V. F., and Kripitser, A. M. Role of slag component in the setting of slag portland cement (3) 53*h*.

Szabłowski, Jerzy See Foszcz, Stanislawa

Szabo, Attila See Bakos, Jozsef

Szczawinska, Elzbieta See Mrowec, Stanislaw

Szczerba, Jacek See Foszcz, Stanislawa

Szedon, John R. See Chu, Ting L.

Szefer, M. See Kopcewicz, M.

Szegvari, A. Attrition of metal and ceramic powders, P (5) 130*a*; Grinding system, P (7) 175*i*.

Szenbanyak, Tatabanyai Treatment of alumina-containing ores before alkaline extraction of the alumina, P (1) 35*a*.

Szijj, Ferenc Possible influences of the type of crusher on properties of crushed material (5) 130*f*.

Szlenk, K., Byszewski, P., and Olempska, Z. Hall effect and conductivity of $Ga_xIn_{1-x}Sb$ (1) 39*h*.

Szollosi, Jozsef Ways to high-strength glass: I-II (9) 203*i*. Invisible inclusions in glass (7) 158*b*.

Szombathy, Zoltan Dense, white hf ceramics of 90% Al_2O_3 fired at 1420° (5) 123*c*.

Szpunar, Jerzy, Kwatera, Andrzej, and Powroznik, Augustyn Texture of graphite bodies in neutron diffraction examination (1) 47*c*.

Szwej, W. See Kwiatkowski, A.

Szynkarczuk, M. See Taskinen, P.

Szytula, A. See Ban, Z.

Tabachishina, N. M. See Torgashov, V. V.

Tadros, L. B. See Kendall, E. J. M.

Tadros, M. E., Skalny, Jan, and Kalyoncu, R. S. Early hydration of tricalcium silicate (9) 194*a*.

Taeyaerts, Jan Guidelines to determine diamond concentration required to grind glass (7) 149*e*.

Taft, William E. See McKeehan, Ernest R.

Tagai, Hideo See Hasegawa, Yasushi ; Takamiya, Youichi

Tagirov, V. I. See Azhdarov, G. Kh.

Tairov, Yu. M., Tsvetkov, V. F., and Khlebnikov, I. I. Growth of SiC crystals by VLS mechanism in the sublimation method (1) 26*c*.

Tajima, Hidemi See Asahara, Yoshiyuki

Tajima, Yo See Mizutani, Nobuyasu

Takabatake, Mitsuo, and Tsuji, Kikuo Refractory oxide coatings, P (5) 122*h*.

Takada, Tadahiko See Hirano, Toru

Takada, Toshio See Yonezawa, Masatomo

Takagaki, Takashi See Mukogawa, Masashi

Takagawa, Masanori See Kobayashi, Yoshichika

Takagi, Hiroyoshi, Sano, Shiro, and Ishii, Eiichi Method of preparing fine oxide powders (5) 118*e*.

Takagi, Kazumasa, Fukazawa, Tokuumi, Ishii, Mitsuru, and Kishino, Seigo Single crystals, P (7) 173*h*.

Takahara, Hiroaki See Kitayama, Teruki

Takahashi, Akikazu, Futatsugi, Yuji, Yao, Takamu, and Higashide, Yoichi Shatterproof glass bottle, P (3) 62*e*.

Takahashi, Hiroaki, Meshitsuka, Shunsuke, and Higasi, Keniti Ir spectra and lattice vibrations of alkali and alkaline earth metal sulfates (5) 140*b*.

Takahashi, Junichi, Kodaira, Kohei, Matsushita, Toru, and Yamai, Iwao Effect of V_2O_5 additive on the sintering of SnO_2 (1) 38*a*.

Takahashi, Junichi, Yamai, Iwao, and Saito, Hajime Effect of Nb_2O_5 additive on the sintering of SnO_2 (3) 86*d*; Effect of additives on sintering and electrical conductivity of TiO_2 (5) 125*d*.

Takahashi, Katsuaki See Yoshio, Tetsuo

Takahashi, Kazuhiko See Takeda, Kenzo

Takahashi, Kazuhisa See Ishii, Takashi

Takahashi, Kentaro See Mochida, Norio

Takahashi, Kentaro, Mochida, Norio, and Hatta, Gohtaro Properties and structure of silicate glasses containing trivalent cations (3) 58*j*.

Takahashi, Koichiro See Kakegawa, Kazuyuki ; Shirasaki, Shinichi; Yamamura, Hiroshi

Takahashi, Minoru See Kobayashi, Taneo

Takahashi, Osamu See Shimada, Noburo

Takahashi, Osamu, Takahashi, Tadaaki, and Shimada, Noburo Method of lining charging side of converter using tar-impregnated burned dolomite-MgO brick (5) 118*e*.

Takahashi, Ryuji, Moriyoshi, Yusuke, and Komatsu, Wazo Effect of O pressure on the initial sintering of Ni oxide (1) 37*h*.

Takahashi, S. See Miyashita, T.

Takahashi, Satoshi See Setoyama, Katsumi

Takahashi, Susumu Atm isolating means in a continuous-type furnace, P (1) 33*i*.

Takahashi, Tadaaki See Shimada, Noburo ; Takahashi, Osamu

Takahashi, Takehiko, Itoh, Hideaki, and Noguchi, Shoichiro Formation of ZrN films and whiskers by chemical vapor deposition technique (3) 88*e*.

Takahashi, Takehiko, Kuwabara, Katsumi, and Kase, Yuji K ion conduction in K beta ferrites (3) 90*h*.

Takahashi, Tatsuo, Yamada, Osamu, and Ametani, Kohei Growth of FeS single crystals from nonstoichiometric melts by normal freezing (1) 39*f*.

Takahashi, Tsugukazu See Oki, Kazuo

Takahashi, Yasunori, Yamaoka, Nobutatsu, Yamaoka, Yoshifumi, and Kakubari, Shuichi Intergranular insulation-type polycrystalline ceramic semiconductive composition, P (5) 127*e*.

Takahashi, Yasutaka See Motojima, Seiji

Takahasi, Osamu Improvement of off-take in skelp heating furnace (3) 65*i*.

Takamiya, Youichi, Fukuda, Takao, Imai, Hideki, and Tagai, Hideo Effect of CaO on sintering of MgO (5) 137*a*.

Takamiya, Youichi, Konishi, Hideo, and Tagai, Hideo Solid solubility of $Ca(OH)_2$ in $Mg(OH)_2$ (1) 45*f*.

Takamiya, Youichi, Oda, Yasuyoshi, and Tagai, Hideo Crystallite growth of MgO in hot-pressing at low temps. (3) 85*c*.

Takamiya, Youichi, Ota, Chisato, and Tagai, Hideo Structure of $Mg(OH)_2$ produced on {100} planes of MgO single crystals (1) 46*e*.

Takamori, Takeshi Relaxation of thermal stress in phase-separated borosilicate glasses (5) 144*j*.

Takamori, Takeshi, Reisman, Arnold, and Berkenblit, Melvin Role of Cu ions in low-melting solder glasses (9) 203*c*.

Takanashi, Yoriyuki See Shimada, Hachiro

Takano, Hiroshi See Kumada, Akio

Takao, Hiroshi, Togawa, Kimmochi, Abe, Satoshi, and Nakagawa, Sigeyosi Ceramic [honeycomb] structures, P (1) 31*d*.

Takashima, Hiroo, and Saito, Hajime Relation between acid durability and ir reflection spectrum in PbO-SiO_2 frit (1) 45*d*; Effects of various cation additions on dissolution of Pb ion by acetic acid in Pb oxide-SiO_2-metal oxide system frits (3) 56*g*; Effects of various cations on dissolution of Pb ion with acetic acid in PbO-SiO_2-metal oxide system frits (9) 198*d*.

Takashima, Hisashi See Shimamura, Hiroyuki

Takashio, Haruo Alkali Ba SiO_2 glass-to-dumet wire seals (3) 55*g*; Forsterite ceramic-to-Ti metal seals by reactive alloying method (5) 125*j*.

Takata, Masasuke, Kijima, Mamoru, Sugiyama, Tatsuo, and Yanagida, Hiroaki Doping effects of Al_2O_3 or Nb_2O_5 on the electrical conductivity of TiO_2 sintered bodies (9) 229*i*.

Takata, Masasuke, Tsubone, Daisuke, and Yanagida, Hiroaki Dependence of electrical conductivity of ZnO on degree of sintering (3) 85*i*.

Takatsu, Manabu, and Ikeda, Shuji Tempering of flat glass (5) 110*f*.

Takechi, Hiroshi See Gondo, Hisashi
Takeda, F. See Matsuura, Koichi
Takeda, Kenzo, and Takahashi, Kazuhiko Construction of hot pig iron runners by sandwich method, using C bond refractories (3) 64*g*.
Takeda, Yuji, Ishii, Shigeo, Tojo, Yoichi, and Fukumoto, Yoshihiko Construction using channel blocks in combination with epoxy resins (3) 64*j*.
Takehisa, Eiji See Yasue, Tamotsu
Takekata, Kiyoshi See Sobajima, Shigenobu
Takemoto, Toyoki MOS-type semiconductor IC device, P (3) 76*i*.
Takemura, Eiji Experiments on gunned lining of mixer cars (3) 65*e*. See Hattori, Ken
Takeuchi, Akihiro See Niizeki, Kinya
Takeuchi, Harunori, Nagano, Masamitsu, Suyama, Yoko, and Kato, Akio Preparation of finely divided alumina by vapor-phase reaction between $AlBr_3$ and O (1) 44*f*.
Takeuchi, Hiroshi See Shinagawa, Kiminari
Takeuchi, Hiroshi, Ito, Shinichi, Mikami, Itsuo, and Taniguchi, Satoshi Faraday rotation and optical absorption of a single crystal of Bi-substituted Gd Fe garnet (7) 182*f*.
Takeuchi, Manabu, and Nagasaka, Hideo Electrical resistivity of sputtered Cu_2O-CuO-glass thin films (3) 73*g*.
Takeuchi, Masaharu See Noritake, Muneo
Takeuchi, Yukihisa See Noda, Fumiyoshi
Takher, E. A., Dain, E. P., Fedoseeva, T. I., and Lenskaya, G. S. Highly sintered monomineral cordierite ceramic (1) 8*f*.
Takher, E. A., Fedoseeva, T. I., Kellerman, V. Yu., and Popil'skii, R. Ya. High-strength steatite ceramics with broad sintered state range (1) 23*h*.
Takher, E. A., Popil'skii, R. Ya., Kellerman, V. Yu., and Sokol'nikova, A. G. Dielectric steatite ceramics (9) 217*d*.
Takura, Kazuo See Korenaga, Sadayoshi
Talaber, Jozsef Still not the last word on aluminous cements (3) 53*b*.
Talanova, I. R. See Ostrovskaya, P. S.
Talantsev, A. S. Impossibility of using the Nernst equation for analysis of equilibria of polycomponent minerals (9) 233*a*.
Tallerchik, B. A. See Novikov, V. N.
Tallman, Richard L. Collection of particles for X-ray powder diffraction by the Debye-Scherrer method (9) 222*a*.
Tal'yanskaya, N. D. See Vishnevskii, I. I.
Tamai, Yozo See Suwa, Yoshiko
Tamas, Ferenc International Congress on Cement Chemistry in Moscow (3) 52*e*. See Vertes, Attila
Tamas, Ferenc, and Varady, Tibor Role of polymerization in the hydration of cements (3) 53*e*.
Tamosiunas, S. See Petretis, B.
Tamura, Hideo, and Yoshida, Tetsuro Formation of model grain boundary by bonding two surfaces of sintered Cu ferrites and its properties (5) 139*h*.
Tamura, Masao See Saida, Hiroji
Tamura, Minoru See Sobajima, Shigenobu
Tamura, S., Kato, K., and Goto, M. Single crystals of T-Nb_2O_5 obtained by slow cooling method under high pressures (9) 238*j*.
Tamura, Seiichi See Yokokawa, Toshio
Tamura, Seiichi, Yokokawa, Toshio, and Niwa, Kichizo Enthalpy of BeF_2 from 456 to 1083°K by transposed-temp. drop calorimetry (7) 182*a*.
Tamura, Setsuo See Saeki, Osamu
Tamura, Zensuke See Tanaka, Hirobumi
Tanaka, Hidehiko See Kimura, Shiushichi ; Yasuda, Eiichi
Tanaka, Hideo Measure for prolonging life of ladle bottom (5) 118*c*.
Tanaka, Hirobumi, Arashi, Norio, Hishinuma, Yukio, and Tamura, Zensuke Process and apparatus for producing gypsum lumps, P (5) 102*f*.
Tanaka, Hirokichi See Kijima, Kazunori
Tanaka, Masami See Minami, Tsutomu
Tanaka, Minoru, Motoyama, Muneyuki, Ishima, Kenichi, and Hashizume, Genzo Smoking process in manufacture of smoked rooftiles (9) 207*a*.
Tanaka, Shunichi Structure of rotary nozzle and service test results: II (5) 120*h*.
Tanaka, Shunichi, and Yoshihara, Tetsuya Structure of rotary nozzle and service test results: III (5) 120*h*.
Tanaka, T. Determining the speed function as an aid in design and layout of industrial fine grinding mills (3) 77*f*; Predicted dynamic response of holdup in continuous ball mills (5) 130*g*. See Mitomo, M. ; Suzuki, A.
Tanaka, Tatsuo Predicted dynamic response of holdup in continuous ball mills (5) 130*g*. See Ouchiyama, Norio
Tanaka, Toshiaki See Tashiro, Chuichi
Tananaev, I. V., Volodina, A. N., and Bol'shakova, N. K. Interaction of Ga and Cs selenites under hydrothermal conditions (5) 140*d*.
Tananaev, I. V., Volodina, A. N., Bol'shakova, N. K., and Petrov, K. I. Effect of the nature of alkali metals on the composition and properties of Ga binary selenites (5) 138*a*.
Tanasescu, Speranta See Marchidan, D. I.
Taneja, C. A. Effect of alumina content and fineness of blast furnace slag on the sulfate resistance of slag cements (3) 51*c*; Role of Al_2O_3, MgO, and MnO on the hydration and hardening of slag glasses (3) 53*d*.
Tang, Arthur Y. C. Diamond wheel mounting assembly, P (9) 193*g*.
Tang, T. Stress analysis of glass-bonded ferrite recording heads (9) 218*g*.
Tani, Tetsuro See Oka, Izumi ; Onishi, Toshiyasu
Tani, Tetsuro, Kadono, Atsuro, and Sakurai, Shigeo High-temp. burned dolomite-magnesite brick used in hot spot (7) 165*f*.
Tani, Tetsuro, Kimura, Morihiro, Kyoden, Hiroshi, and Nanba, Yasutoshi Lining of ladle by slinger process: IV (5) 117*i*.
Tani, Tetsuro, Kimura, Morihiro, and Nanba, Yasutoshi Lining of ladle by slinger process: V (7) 165*j*.
Tani, Tetsuro, Kimura, Morihiro, and Otani, Takeo MgO-Zr-O_2 refractories for taphole of converter (5) 118*g*.
Tani, Tetsuro, Kimura, Morihiro, Otani, Takeo, and Watanabe, Jiro Characteristics of MgO-chrome clinker brick and service results obtained (5) 116*b*.
Taniguchi, Kasuyuki See Kitayama, Minoru
Taniguchi, Satoshi See Kobayashi, Toshio ; Shinagawa, Kiminari ; Takeuchi, Hiroshi
Tanimoto, Akira See Adachi, Masao
Taniyama, Mitsuya See Ochiai, Tsunemi
Tanner, B. K. See Safa, M.
Tannhauser, D. S. See Friedman, F.
Tarabanov, A. S., Makhalov, P. N., Dergunova, V. S., and Lazarev, G. E. Method of preparing an antifriction material, P (9) 213*d*.
Taraci, Richard F. See Burt, Dan L.
Tarakanchikov, G. A. See Abbakumov, V. G.
Taranukhin, N. A., and Voskovnyuk, A. M. Improving the techniques for drill-blast work (1) 3*a*.
Tarasenko, L. Yu. See Bron, V. A.
Tarasenko, V. V. See Dickshtein, I. E.
Tarasov, B. V. See Melkonyan, R. G.
Tarasova, G. M. See Strogonov, Yu. D.
Tarasuk, Walter R., and Yonemitsu, Isao D. Tubular fuel cluster, P (7) 174*f*.
Tarcza, Walter H. Machinable hydrothermally crystallized glass bodies, P (3) 61*d*. See Bartholomew, Roger F.
Tarczy, K. See Osvay, M.
Tarnarutskii, G. M. See Kravchenko, I. V.
Tarpley, John L. See Haehner, Carl L.
Tarriant, R. Role of oxidation during enamel firing in the direct-on process on decarburized steel (1) 4*c*; Aspect of the part which oxidation plays during the firing of enamel in the process of enameling direct-on to decarburized steel (5) 102*j*.
Tarricone, L. See Paorici, C.
Tarry, H. A. See Gooch, C. H.
Tarte, Pierre See Dimanche, Francois
Tarver, Clayton C. See Stierli, Robert F.
Tasaki, Akira See Kaji, Gentaro
Tashima, Junichiro Spring spacer device for resiliently supporting nuclear fuel rods, P (1) 30*a*.
Tashiro, Chuichi, and Tanaka, Toshiaki Hydrothermal treatment of $Ca(OH)_2$ and Al_2O_3 mixtures containing ZnO (5) 140*i*.
Tashiro, Megumi, Kokubo, Tadashi, Ito, Setsuro, and Arioka, Masayuki Oriented polycrystalline oxide ceramics fabricated by unidirectional solidification of their melts (9) 236*i*.
Tashkova, A. See Dimitrov, Z. ; Lyutskanov, St. ; Pavlova, I.
Tasker, G. William See French, William G.
Taskinen, P., Szynkarczuk, M., and Tikkanen, M. Sintering of nonstoichiometric Cu(I) oxide (9) 239*e*.
Tatara, Seiji, Iwasa, Shozo, and Komura, Shuichi Glass-forming materials, P (3) 83*c*.
Tatevosyan, K. M., and Melik-Akhnazarov, A. F. Refining of alkali-free aluminoborosilicate glass in an electric arc furnace (3) 59*c*.
Tatewaki, Shoichi See Yoshida, Fumio
Tatsii, V. F. See Breusov, O. N.
Tatski, A. N. See Knigina, G. I.
Taube, P. R., Aisina, N. A., and Isakova, L. G. Photoelectric method for determining the particle size of raw materials (9) 223*i*.
Tauber, E., Pepplinkhouse, H. J., and Crook, D. N. Lightweight ceramics (7) 169*a*.
Taukchi, V. N. See Onishchenko, P. V.
Tawfik, A. See Amin, M.
Taylor, Derek See Henderson, C. M. B. ; Nijhawan, Krishan K. ; Rose, M. E.
Taylor, H. F. W. Structural chemistry of Ca silicates and $CaSiO_3$ hydrates (5) 101*g*.
Taylor, Michael David See Kenworthy, Jeffrey Stuart
Taylor, P. C. See Strom, U.
Taylor, P. C., and Friebele, E. J. Nature of unique B sites in borate glasses (1) 10*c*.
Taylor, Paul F. Class IV B metals ore reduction, P (3) 83*a*.
Taylor, Percy R. Production of improved ceramic shell molds, P (1) 21*j*.
Taylor, R., Fowler, C. M., and Rolls, R. Thermal diffusivity of wustite (1) 47*g*.
Taylor, R. I., Coad, J. P., and Hughes, A. E. Grain-boundary segregation in MgO-doped Al_2O_3 (9) 232*f*.
Taylor, William L. See Smith, Warren H.
Tazawa, Toshio See Nakahara, Yoshiko
Tcheichvili, L., and Butschkowskyi, M. Problem of mullites (1) 44*i*.
Tcheng-si, Wang See Bartholin, H.
Tchoubar, C. See Besson, G.
Teder, L. I. See Chernyakhovskii, V. A.
Tedesco, L. See Paoletti, G.
Tefft, Edward G. See Kennedy, Richard W.
Teigeler, A., and Hoens, M. F. A. State of the art of electrostatic application of powdered enamels (7) 154*h*.
Tell, Benjamin, and Kasper, Horst M. Electrical properties of $CuGaS_2$ (7) 181*f*.
Teller, Aaron J. Control of glass furnace emissions (9) 199*d*.
Tellier, Jean-Claude See Foulatier, Pierre
Temkin, R. J. Analysis of the radial distribution function of SiO_2 (1) 35*e*.
Tempel, E. New building units and components of fired clay (5) 115*a*.
Temple, Patrice, and Zarzycki, Jerzy Determination of percentage of crystallinity of glass-crystal mixtures by solution calorimetry (9) 200*a*.
Tenchio, G. See Nyffenegger, H.
Tennakoon, D. T. B. See Tricker, M. J.
Tennent, Howard G. Chemical modification of the surface of pyrolytic graphite, P (3) 69*f*.
Tennery, V. J. See Morgan, C. S. ; Niesz, Dale E. ; Potter, Ralph A.
Tenoutasse, Nemath, and Czamarska, Danuta Effect of $N(C_2H_4OH)_3$ on the hydration of portland cement (7) 151*a*.
Tentulescu, D. Colorless and chemically and heat-resistant glass free of B and alkalis, and its applications (7) 155*i*.
Tentulescu, Dumitru, and Tentulescu, Lucia Performance attained in Romania using fireproof materials melted electrically with Zr in the building glass furnaces (7) 165*e*.
Tentulescu, Lucia See Tentulescu, Dumitru
Teodorescu, I. A. See Apostol, I.
Teodorescu, Sanda See Rusu, Ecaterina
Teoreanu, I., and Montean, Marcela Structure formation processes from Casilicates hardened in the presence of electrolytes (5) 101*i*; Processes of hardening in the systems $3CaO.Al_2O_3$-H_2O electrolyte and $4CaO.Al_2O_3.Fe_2O_3$-H_2O electrolyte (7) 152*i*.
Teoreanu, I., Montean, Marcela, and Dragnea, I. Formation of $3(CaO\text{-}Al_2O_3)$.-$CaSO_4$ in the system $CaCO_3$-Al_2O_3-Fe-SO_4 (5) 139*g*.
Teoreanu, I., and Puri, A. Cycle of volatile substances in rotary kilns for portland cement clinker (3) 50*f*.
Tequi, C. See Denielou, L.
Terada, Kiyoshi, and Shimizu, Satoshi Effect of kiln gas recirculation on fuel consumption rate and on kiln gas temp. in fuel fired lime shaft kiln (7) 151*f*.
Terada, Yukio See Kawamata, Tadashi
Terai, R., and Hayami, R. Ionic diffusion in glasses (3) 57*h*.
Teraishi, Katsuhiro, and Yamada, Kuniharu Variable ceramic capacitor for an electronic wristwatch, P (3) 77*c*.
Teramoto, Hideo, and Kole, Shichiro Cr-containing phases in a super-high early strength portland cement (3) 50*b*; Phase composition and hydration of a very high-grade portland cement clinker with foreign constituents (3) 52*a*.
Teraoka, Kohta, and Nakano, Toshio Method of making crystal, P (1) 29*a*.
Terashima, Toshio See Ohnishi, Masayoshi
Teree, M. See Illig, J. L.
Terenyi, Gyula Application of refractory linings with Si oxynitride binder in electrolyzing baths (5) 115*g*.
Terner, Emanuel M. Glass articles, P (9) 204*h*. See Cavanagh, Joseph C.
Terunuma, Yukio See Arai, Eisuke
Terzi, Mariana See Sternberg, S.
Tessler, Lawrence P. Glass anode Geiger-Mueller tube, P (1) 14*f*.
Tetel'baum, D. I. See Kruze, T. A.
Teter, M. P. See Evans, D. L.
Tetersen, Fritz See Korsten, Andreas
Tetzner, G., and Schrader, R. Investigation of mechanically activated catalysts: XIV, Mechanical activation of hexagonal Co powder for a catalyst and its active state (9) 233*e*.
Teychenne, D. C. High-alumina cement concrete—research and results (3) 51*i*.
Thakur, R. S., Muralidhar, J., and Sant, B. R. Recovery of V, Cr, and alumina from bauxite residues by soda ash roasting (3) 83*b*.
Thaulow, Neils See Knudsen, T.
Thell, Sven E. Cooler system for rotary kiln, P (3) 82*a*.
Theisen, Guenter Al enamels, P (5) 103*h*.
Theisen, Kirsten, and Johansen, Vagn Prehydration and strength development of portland cement (1) 3*a*.
Thekdi, Arvind C. Air/fuel ratio control with preheated air (3) 81*h*.
Thery, J. See Antoine, J. ; Boilot, J. P. ; Kahn, A.
Thewalt, M. L. W. See Cornish, W. D.
Theye, M. L. See Boissonade, J.
Thibaud, D. See Sommer, H.
Thieme, C. L. H. See Wolters, M.
Thirumalai, K., Demou, S. G., and Fischer, R. L. Thermomechanical method for secondary breakage of hard rocks (1) 34*d*.
Thomas, A. See Foster, D.
Thomas, J. M. See Tricker, M. J.
Thomas, Jerome D. See Wolcott, Norman G., Jr.
Thomas, M. B., and Doremus, Robert H. Characterizing opacity of translucent ceramic materials (7) 179*h*.
Thomas, Richard N. Insulator substrate with a thin monocrystalline semiconductive layer, P (1) 28*g*.
Thomaswick, Ronald J. Flat glass shipping container, P (7) 161*a*.
Thompson, A. H. Shrinkwrapping bricks and refractories (3) 79*a*.
Thompson, George H. B. GaAs injection lasers, P (3) 61*a*.
Thompson, Gerald G. See Henry, Jack L.
Thompson, Graham R., and Hower, John Mineralogy of glauconite (5) 142*e*.
Thompson, J. S. See Goldstein, L. F. ; Slattery, J. E.
Thompson, John R. Resin-bonded diamond wheels with Cu and SiC fillers, P (1) 1*g*.
Thompson, Peter C., and Bowbeer, Thomas A. Pigmentary TiO_2, P (3) 83*e*.

Thomson, John, Jr. See O'Bryan, H. M., Jr.; Plourde, J. K.; Rhodes, Warren W.
Thorez, Jaques See Dimanche, Francois
Thormann, Peter, and Buchmayer, Peter New arrangement of the heating elements of a high temp. furnace for thermal analyses (9) 224*d*.
Thornburg, D. D. Influence of device geometry on instabilities in current-controlled negative resistors (1) 26*j*.
Thornburg, D. D., and Johnson, R. I. Thermal analysis of bulk amorphous As_2Se_3 (1) 12*j*; Solid-state element comprising semiconductive glass composition exhibiting negative incremental resistance and threshold switching, P (1) 29*h*; Selective etchants for thin-film devices, P (9) 220*b*.
Thornton, A. G., and Wilks, J. Examination of polished diamond surfaces in the electron microscope (7) 149*d*.
Thornton, Alfred K. See Arino, Hirofumi
Thorpe, Ian, and Edwards, Terence Electrically conductive cement, P (1) 28*h*; Electrically conducting cement, P (9) 197*a*.
Thum, W. See Dahm, W.
Thurnauer, Hans, and Coubrough, Lawrence E. Assembly and method for supporting ceramics and the like during firing, P (1) 20*j*.
Thurstans, R. E. See Oxley, D. P.
Ticha, H., and Frumar, M. Optical absorption of glassy semiconductors of the Ge-Sb-Se system (1) 10*a*.
Tichy, L. See Horak, J.
Tick, Paul A. See Seward, Thomas P., III
Tidey, R. J. See Ramage, J. C.
Tiefenboeck See Lindmayr
Tien, Ping King See Ballman, Albert A.
Tien, T. Y. See Gauckler, L. J.
Tiernan, Robert J., Tisdale, Lawrence H., and Besse, Sumner B. Technology of incorporating internal ferrites in microwave power tubes (3) 75*h*.
Tiersten, H. F. See Sinha, B. K.
Tietz, M. See Feltz, A.
Tiggesbaumker, Peter Trends in dry grinding of cement raw materials and in clinker grinding (5) 102*f*.
Tiggesbaumker, Peter, and Blaszczyk, G. Raw meal grinding plants for large throughputs (3) 52*j*.
Tiggesbaumker, Peter, and Lohnherr, Ludger Apparatus for crushing material containing particles that are hard to pulverize, P (7) 178*f*.
Tigonen, G. V. See Savel'ev, V. N.
Tiitola, Riston Method of making silicate-fiber mat of high tensile strength, P (9) 213*d*.
Tikhomirova, M. F., Cherkasov, G. F., and Pankrashova, V. D. Corrosion of concrete in solutions of sulfates of nonferrous metals (3) 50*f*.
Tikhonov, A. P. Formation of coatings from high-concentration aqueous suspensions of refractory oxides (3) 65*f*.
Tikhonov, P. A. See Kuznetsov, A. K.
Tikkanen, M. See Taskinen, P.
Tilliette, Zephyr Nuclear reactor, P (3) 78*i*.
Tilloca, G. See Perez y Jorba, M.
Timashev, V. V. See Butt, Yu. M. ; Kaushanskii, V. E.
Timashev, V. V., Krykhtin, G. S., and Nudel, M. E. Intensification of work of grinding-drying units by adding surface-active agents (5) 100*a*.
Timco, G. W., Dvorak, Z., and Scholessin, H. H. Dielectric properties of pyrophyllite as a function of water vapor pressure (9) 229*g*.
Timmons, Bobby J. See Sweeney, John W.
Timofeev, V. B. See Lysenko, V. G.
Timofeev, V. I., and Aleksandriya, V. K. Decolorization of cut glass by oxides of rare earth elements (9) 199*h*.
Timofeeva, I. I. See Lyutaya, M. D.
Timoshechkin, M. I. See Voron'ko, Yu. K.
Timusk, J. See Robinsky, E. I.
Tindall, R. F. See Iles, G. S.
Ting, Chiu H. See Moreau, Wayne M.
Tinkov, S. See Mitev, T.
Tinkov, S., Tsirkov, I., Toskov, N., and Dimitrov, G. Flaws in porcelain insulators due to microbiological processes (9) 215*e*.
Tisdale, Lawrence H. See Tiernan, Robert J.
Tisone, Thomas C. See Cruzan, Paul D.
Tite, M. S. See Maniatis, Y.
Tite, M. S., and Maniatis, Y. SEM of fired calcareous clays (3) 63*j*; Examination of ancient pottery using the scanning electron microscope (9) 193*d*.
Titlar, James A. See Brissette, Leo A.
Titovskaya, V. T., Gindina, V. E., and Dizengof, G. I. Production technology of shungizit gravels (9) 196*d*.
Titz, H. See Schmidt, G.
Titze, K. Application of powdered enamel coatings, P (3) 54*j*.
Tiwari, R. N., Aurora, B. R., Ganguli, N. C., and Sen, S. P. Factors affecting the recovery of Ni oxide-alumina and Ni oxide-SiO_2 type catalysts (3) 71*d*.
Tkach, L. I. See Zlatokrylov, R. M.
Tobiason, William C. Experience with the argon-O process at Armco Baltimore (1) 17*b*.
Tobin, Albert See Russak, Michael A.
Tochon, Jean P. Vitroceramics, P (9) 206*b*.
Toda, Gyozo See Miyauchi, Katsuki
Toda, Kohji, and Kato, Shinichi Surface elastic waves on piezoelectric ceramic plates under the influence of bending stress (3) 75*g*.
Toda, Masumi, and Matsuda, Tasuku Heating of castable refractories: I (3) 65*b*.
Todes, O. M., Radin, S. I., and Namilov, S. P. Analysis of stability of granulation processes in fluidized bed apparatus (9) 221*i*.
Todorov, T. See Georgiev, M.
Todorovic, J., and Maglic, K. D. Thermal diffusivity of $Mn_2(Cr)Sb$ monocrystal in the range of magnetic transition (1) 47*f*.
Toeniskoetter, Richard H., and Spiwak, John J. Binder compositions, P (5) 121*b*.
Tofield, B. C. Structural behavior of oxidized $LaMnO_3$ and related materials (7) 187*e*.
Tofield, B. C., Weber, H. P., Damen, T. C., and Liao, P. F. Optical properties of NdP_5O_{14}—a high Nd-concentration laser material (7) 159*a*.
Togawa, Kimmochi See Takao, Hiroshi
Toguri, J. M. See Chang, S. K.
Toide, Takashi, Utsunomiya, Taizo, Hoshino, Yoshio, and Sato, Masao Preparation and structures of alkaline earth-La double sulfides using CS_2 as a sulfurizing agent (7) 185*f*.
Tojo, Yoichi See Takeda, Yuji
Tokarski, Zbigniew See Cieciak, Barbara
Tokman, I. A., and Bukhalova, G. A. System $NaPO_3$-Ba-$(PO_3)_2$ (9) 241*b*.
Tokmyanina, T. B. See Razumovskaya, O. N.
Tokuhiro, Yunosuke See Umebayashi, Seiki
Tokushige, Toshio, and Nagayasu, Motokiyo Process of baking or graphitizing C moldings, P (1) 21*i*.
Tolksdorf, Wolfgang See Herrnring, Jorg
Tolksdorf, Wolfgang, and Welz, Fritz Growth of Ga substituted YIG crystals from molten solutions at constant temp. (1) 39*f*.
Toll, Gunnar G. See Jonsson, Bo R.
Tolstaya, V. Ya. Chemical properties of $SrZrO_3$ and $SrHfO_3$ (1) 35*j*. See Karaulov, A. G.
Tolstopyatov, R. V. See Nadiktova, N. M.
Tolutis, R. See Pozela, J.
Tomandl, Gerhard Determination of light-scattering properties of glass surfaces (7) 155*i*.
Tomashenko, A. N. See Frank-Kamenetskii, V. A.
Tomaszewski, H. See Pampuch, Roman
Tomczyk, P. See Suski, L.
Tomes, Derek W. See Hooker, Colin E. L.
Tomimuro, Hisashi See Ohwada, Kuniki
Tomita, Chuji, Kasai, Kazutomo, and Okonogi, Itaru TiN alloy, P (9) 214*i*.
Tomita, Yoshimori, Okamoto, Kazuma, and Sasashima, Yasushi Construction of hot pig iron runners using refractory blocks (3) 64*i*.
Tomita, Yoshimori, Watanabe, Yoshiaki, and Mimura, Nobuyuki Analysis of basic brick used in ladle refining system (5) 115*e*.
Tomizawa, Toshiaki, Hara, Shiro, and Hashimoto, Hidehisa Exothermic processes in the thermal decomposition of basic Mg carbonate (9) 231*g*.
Tomizuka, Isao, and Watanabe, Osamu Wet oxidation of C fibers (3) 68*i*; Estimation of size and shape of graphite layer in C fibers (7) 164*j*.
Tomkowicz, D. See Jasienska, St.
Tomkowicz, Z. See Ban, Z.
Tomlinson, R. D. See Parkes, J.
Tomlinson, W. J. Volume holograms in photochromic materials (5) 111*h*.
Tomozawa, Akihiro, Nakata, Kensuke, Kikuchi, Akira, and Agatsuma, Takashi Forming insulating film on interconnection layer, P (5) 127*i*.
Tomozawa, M., Kim, C. H., and Doremus, Robert H. Glass surface characterization by electrical measurements (7) 157*a*.
Tomozawa, Minoru See Kim, Chulho
Tomsia, Antoni, and Wieczorek, Innocenty W. Effect of enamel composition on the enamel-iron interface (1) 4*g*.
Tomsu, F. Stresses and deformations in monolithic refractories (3) 68*c*.
Tong, K. Y., and Lam, Y. W. Difficulties in observing direct optical excitation of Si-SiO_2 interface states (7) 180*g*.
Tongyai, Singkata See Schuster, Ludwig K.
Topil'skii, G. V. See Butt, Yu. M.,
Toporkova, A. A., Varlamov, V. P., and Kroichuk, L. A. Drying properties of clay materials, P (1) 15*c*; Rapid method for determination of the composition of a clay charge for ceramic bodies (9) 223*d*.
Topping, J. A. See Murthy, M. K.
Torgashov, V. V., Tabachishina, N. M., Ol'ginskii, A. G., and Spirin, Yu. A. Use of SiO_2-containing tailings in the production of articles for industrial heat insulation (5) 121*g*.
Torii, Yasuyoshi Formation of hexagonal $BaCrO_{2.90}$ with a 5-layer stacking sequence (1) 39*h*.
Torii, Yasuyoshi, and Matsumoto, Hideo Formation of cubic $Pb(Cr_{0.50}Nb_{0.50})O_3$ and hexagonal $Ba(Cr_{0.50}Nb_{0.50})O_3$ (1) 39*f*; Synthesis and properties of complex perovskites $La(Ni_{0.75}W_{0.25})O_3$ and $La(Ni_{0.75}Mo_{0.25})O_3$ (1) 46*b*.
Torikai, Eiichi, and Kawami, Yoji Single crystals of β-PbO_2, P (9) 220*b*.
Tornati, M. See Locardi, B.
Torok, Dezso Prevention of environmental pollution during smelting of enamels (7) 154*d*.
Torok, Katalin Limestone grinding in the presence of grinding aids (5) 100*a*. See Scheer, L.
Toropov, A. N., Sokhovich, E. V., Rubinshtein, O. V., and Ermakova, T. M. Resistance of refractory materials to a Ba melt (5) 120*b*.
Torti, M. L. Composite ceramic turbine rotor, P (1) 21*g*.
Torti, Maurice L., Jr,, and Richerson, David W. High strength composite ceramic structure, P (3) 69*f*.
Toskov, N. See Tinkov, S.
Tosser, A. See Murray, H.
Toth, Kalman, and Hrapka, Ilona Mechanism of expansion and disintegration of perlite (5) 142*a*.
Totskaya, G. A. See Karpinos, D. M.
Touchy, Wolfgang Semiconductive monocrystals of group III-V semiconductor compounds, P (5) 128*c*.
Toussaint, Francois See Plumat, Emile
Tousset, J. Nuclear methods in the study of surfaces (3) 80*h*.
Tovmas'yan, I. K. See Sholokhova, V. I.
Townsend, Harold J. See Anschutz, James E.
Toy, Albert, Richardson, Neal A., and Bromberg, Robert Thin-film solid electrolyte structures, P (1) 29*j*.
Toyama, Shigeki See Otake, Takeshi
Toyer, J. H. See Emmony, D. C.
Toyoshima, Yoshio See Zembutsu, Sakae
Toyuki, Hiroshi, and Imaoka, Minoru Viscous behavior of K_2O-B_2O_3 and KF-B_2O_3 system glasses (7) 160*c*.
Tozier, J. E. See Boll, R. H.
Trachevskii, M. L. See Shakhmeister, A. B.
Tracy, C. Edwin See Carlson, David E.
Trager, Tamas, and Fodor, Peterne Analysis of cements and cement raw materials by atomic absorption (5) 97*h*.
Tran, D. C. See Moynihan, C. T.
Trandafilova, E. G. See Zapryanova, A. Z.
Trap, Hendrikus J. L. Semiconducting glasses exhibiting electrical conductivity in the mass, P (1) 15*e*.
Tratas, T. G. See Lysenko, V. G.
Traustel, Sergei See Kienow, Sigismund
Travers, D. N., and Meredith, R. J. Microwaves (3) 81*e*.
Traverse, J. P. See Aldebert, P.
Trela, B. See Dargel, L.
Tresouthick, Stewart W. White portland cement, P (9) 197*f*.
Tressler, R. E. See McHenry, K. D.
Tressler, R. E., Meiser, M. D., and Yonushonis, T. Molten salt corrosion of SiC and Si_3N_4 ceramics (7) 184*e*.
Tretnikova, M. G. See Ignatova, T. S. ; Khoroshavin, L. B.
Tret'yak, Z. A. See Korobka, L. A.
Tret'yakov, I. I. See Sklyarov, A. V.
Tretyakov, Yu. D. See Fadeeva, V. I. ; Glyzina, L. N. ; Gryzina, L. N.
Tret'yakova, K. V. See Nisel'son, L. A.
Trevisan, Gianfranco, Mascaro, Francesco, and Brichta, Corrado Properties of glass surfaces, P (9) 206*b*.
Tribunskii, V. V. See Vokhmyakov, A. N.
Tricker, M. J. See Jefferson, D. A.
Tricker, M. J., Tennakoon, D. T. B., Thomas, J. M., and Graham S. H. Novel reactions of hydrocarbon complexes of metal-substituted sheet silicates—thermal dimerization transstilbene (9) 235*j*.
Tricker, M. J., Winterbottom, A. P., Bishay, Adil M., and Moutran, R. F. X-ray induced photoelectron spectroscopic study of Ca phosphate glasses containing Fe (1) 13*g*.
Trier, Wolfgang Fuel economy in the melting end of glass tanks—possibilities of improvement (7) 157*f*.
Trifonov, K. I. See Gorbunov, L. V.
Trimmer, Donald S. See Skrabek, Emanuel A.
Tripathi, N. D. See Kor, S. K.
Tripathi, S. R., Gupta, D. C., and Sharma, M. N. Anderson-Grueneisen parameter for cubic crystals (7) 179*e*.
Tripp, W. C. See Hinze, J. W.
Triquet, C. See Funk, R.
Tritten, Paul See Auriol, Alain
Troemel, Gerhard See Koch, Klaus
Troitskii, V. N., Grebtsov, B. M., and Alvazov, M. I. Preparation of powders of Ti boronitrides in superhigh-freq. discharge plasma (1) 18*d*.
Trowbridge, Frank R. See Abercrombie, William F., Jr.
Troyanov, S. I. See Izmailovich, A. S.
Trukhan, S. G. See Stepanchuk, A. N.
Trunov, A. M., Presnov, V. A., Uminskii, M. V., and Ponomarenko, T. I. Low-temp. spinel-formation of a system of Fe-Ni and Fe-Co oxides (9) 234*b*.
Trunov, G. V. See Sleptsov, V. M.
Trunov, V. K. See Bushuev, N. N.
Trunov, V. K., and Evdokimov, A. A. Double Li and rare earth tungstates (9) 230*a*.
Trunov, V. K., and Kudin, O. V. New modifications of double molybdates of K and rare-earth elements (Tm-Lu) (1) 42*d*.
Trunov, V. K., and Velikodnyi, Yu. A. Alkali metal polytungstates (1) 35*c*.
Truscott, Norman R. See Segre, Joseph P.
Trush, G. I. See Ivanchenko, Yu. M.
Trusova, N. N. See Voronov, B. K.
Tsai, F. See Nancollas, G. H.
Tsailingol'd, A. L. See Patrusheva, V. A.
Tsanava, Ts. P. See Khizanishvili, I. G.
Tsang, Floris Y. See Brown, William E.
Tsanovski, St. See Karapchanski, N.
Tsao, George T. See Patel, Arun K.
Tsarevskii, B. V. See Popel, S. I.
Tseitlin, L. A., Mendelenko, A. K., Balyuk, S. T., and Zhukova, Z. D. Reaction of electrically melted corundum with orthophosphoric acid (3) 67*a*.
Tsekhovol'skaya, D. I., Lazarev, A. N., and Nikolaeva, L. Ya. Ir spectrum and structure of Na hydroaluminocarbonate (9) 233*j*.
Tselikovskaya, T. G. See Liberman, G. V.
Tsepeleva, T. G. See Popov, M. I.
Tseplovich, B. I., Shkurdai, T. A., and Kirgizova, L. A. Spectrographic analysis of enamels (3) 54*h*.
Tsetlin, M. B. See Golyanov, V. M.
Tsifrinovich, V. I. See Ignatchenko, V. A.

Tsigler, V. D., and Rud, R. F. Firing of large Dinas bricks in tunnel-type kilns (3) 65*f*.
Tsigler, V. D., Rud, R. F., Gubko, I. T., and Orlov, G. V. Production of large Dinas brick lightweight products for high-temp. heaters in blast furnaces (9) 211*c*.
Tsigler, V. D., Usatikov, I. F., and Rud, R. F. Effect of composition of mineralizing additives on properties and firing characteristics of Dinas brick (5) 116*j*.
Tsikhotskii, E. S. See Dudkevich, V. P.
Tsiklauri, Ts. G., Ippolitov, E. G., Petrov, S. V., and Zhigarovskii, B. M. System BaF_2-$FeFe_3$ (1) 46*d*.
Tsirel'nikov, V. I. See Izmailovich, A. S.
Tsirkin, I. I. See Abramov, V. I.
Tsirkov, I. See Tinkov, S.
Tsivilev, R. P. See Panov, G. E.
Tsokurenko, I. V. See Kochetkova, G. V.
Tsubone, Daisuke See Takata, Masasuke
Tsubouchi, K. See Sasaki, Hiromu
Tsubouchi, Norio See Utsumi, Kazuaki
Tsuchihashi, Shoji See Inoue, Masayoshi ; Kawamoto, Yoji
Tsuchihashi, Shoji, Konishi, Akio, and Kawamoto, Yoji Chemical attack of optical glass surface by formic acid vapor (7) 155*f*.
Tsuchiya, Toshio Theoretical consideration of the electrical conductivity of glass having a wide distribution of activation energies (5) 110*h*.
Tsuchiya, Toshio, and Moriya, Taro Electrical properties of phosphate glass containing Cu oxide (1) 7*g*; Electrical conduction and dielectric relaxation in phosphate glass containing MnO and Fe_2O_3—reducing and annealing effects (3) 56*j*; Electrical properties of phosphate glass containing Li_2O, K_2O, and Fe_2O_3 (5) 106*e*.
Tsuge, Akihiko, Inoue, Hiroshi, and Komeya, Katsutoshi Liquid phase sintering of TiN-Co and TiN-WC-Co systems (1) 41*j*.
Tsuji, Kikuo See Takabatake, Mitsuo
Tsuji, Nobuhiro See Sakamoto, Takashi
Tsuji, Teruaki, and Watanabe, Shigeru Method and apparatus for removing an in-core neutron flux monitor, P (3) 78*g*.
Tsukiyama, Koichi See Uchikawa, Hiroshi
Tsukuda, Yasuo, and Muta, Akinori Sintering Y_2O_3 (5) 145*g*.
Tsunashima, A., Kanamaru, F., Ueda, S., and Koizumi, M. Hydrothermal synthesis of amino acid-montmorillonites and ammonium-micas (3) 88*j*.
Tsunashima, Atsumu See Fukushima, Jun ; Ito, Shigeru ; Matsushita, Toru
Tsunawaki, Yoshiaki See Iwamoto, Nobuya
Tsunematsu, Shuji, Inoue, Kozo, and Matsuda, Osaku Crystallized glasses produced by the use of Shirasu volcanic ash (9) 199*f*.
Tsuno, K. See Yamamoto, T.
Tsurumi, Ichiro See Matsuura, Koichi
Tsusaka, Kazuhide See Suzuki, Kazutaka
Tsushima, Tachiro See Hirano, Masahiro
Tsutsul'kovskii, V. Ya. See Leznev, Yu. P.
Tsutsumi, M. See Mitomo, Mamoru
Tsutsumi, Masayuki See Inomata, Yoshizo
Tsuzuki, Yoshihiro See Niimi, Itaru
Tsuzuki, Yoshiro See Nagasawa, Keinosuke
Tsven, A., and Grylitski, M. Laboratory crucibles from pure CaO (9) 210*a*.
Tsvetkov, V. F. See Tairov, Yu. M.
Tsvetova, E. V. See Bendorius, R.
Tsyganov, A. D. See Gorbachev, V. V.
Tsyngauz, I. E. See Rozentsveig, S. M.
Tu, King-Ning See Mayer, James W.; Ziegler, J. F.
Tuccillo, Joseph J. Dental restoration combining dental porcelain and improved white gold alloy, P (9) 216*j*.
Tucholka-Szmeja, B. Dimensional changes in SiO_2 bricks in the range 1300–1500°C (3) 64*f*.
Tuck, B., and Hearing, R. Initial growth of GaAs on (100) Ge (3) 89*d*.
Tuck, B., and Hooper, A. Diffusion profiles of Zn in InP (3) 73*a*.
Tucker, Bernard G. Determination of low surface areas by the continuous flow method using an interrupted flow technique (1) 32*f*.
Tucker, J. See Moynihan, C. T.
Tueta, Roger See Bejat, Jean
Tullock, R. J., and Roth, C. B. Stability of mixed Fe and Al hydrous oxides on montmorillonite (3) 92*a*.
Tumakova, E. I. See Guzman, I. Ya.
Tumanov, S. G., Bystrikov, A. S., and Pavlova, V. A. Pigments of the system CeO_2-MoO_3 (5) 124*a*; Effect of alkali metal and alkaline earth oxides on the color of Ce oxide-Mo(VI) oxide system pigments (9) 215*c*.
Tumanov, S. G., and Pavlova, V. A. Pigments of Ce(IV) oxide-Pr(IV) oxide system (1) 23*b*.
Tummala, Rao R. Stress corrosion of a low temp. solder glass (7) 159*h*. See Brownlow, James M. ; Frieser, Rudolf G. ; Sherk, Thomas A.
Tung, Chi Fang, and Laird, James A. Transparent glass microspheres and products made therefrom, P (7) 163*d*.
Turco, G. See Baussy, Genevieve ; Caruba, Raoul
Turetskii, A. M. See Butt, Yu. M.
Turitto, Vincent T. Improved model for analyzing platelet deposition on glass surfaces (1) 32*d*.
Turk, Danica H. See Mikhail, R. Sh.
Turkalo, Anna M. See Borom, Marcus P.
Turlakov, V. N. See Belozerov, B. P.
Turnbull, David See Chou, C. P. Peter; Drummond, C. H., III
Turnbull, J. A. See Horsley, G. W.
Turner, C. See Wilson, G. W.
Turner, Charles L. Structural ceramic article, P (5) 122*b*.
Turner, Gordon J. Reduction firing of ceramics composited with organic binders, P (5) 130*f*.
Turner, Harold L. See Smith, Warren H.
Turner, Tom Producing copper red salt glazes (7) 149*e*.
Turos, A. See Barcz, A.
Turos, A., vanderWeg, W. F., Sigurd, D., and Mayer, J. W. Change of surface composition of SiO_2 layers during sputtering (9) 227*h*.
Turusheva, G. Yu. See Karayakin, V. A.
Turyanitsa, I. D. See Khiminets, V. V. ; Semak, D. G.
Tuttle O. F. See Cooper, A. F.
Tweeton, Daryl R. Effect of environment on friction and wear between quartz and steel (7) 149*a*.
Twigg, E. See Batchelor, P. J.
Twigger, James R. See Carini, George F.
Tyagi, M. S. Hall and field effect mobility of CdS films sublimed on sapphire substrates (9) 217*f*.
Tyagi, R. C., and Kumar, Rajendra Vacuum depostion of crystalline CdS films (3) 75*i*.
Tyagulskii, I. P. See Sitenko, T. N.
Tyapkina, N. D. See Valyashko, E. G.
Tye, R. P., and McCauley, James W. Thermal conductivity and linear expansion of Ba mica/alumina composite materials (1) 20*f*.
Tyler, Christopher, and Hirsch, Richard Raku—Techniques for Contemporary Potters, B (3) 96*e*.
Tymchishin, P. N., and Ikonnikova, G. M. Study of transition processes in GaAs epitaxy by measuring gas-phase electrical conductivity (9) 218*h*.
Tyndell, Brian P. See Malmendier, Joseph W.
Tynes, A. R. See Nagel, Suzanne R.
Tyrrell, M. E. See Goode, Alan H. ; Liles, K. J.
Tyrrell, M. E., and Clarke, Otis M., Jr. Ceramic investigations in the Eufaula bauxite district, Alabama (5) 133*e*.
Tyson, C. N. Fracture mechanisms in C fibers derived from PAN in the temp. range 1000–2800°C (1) 39*i*.
Tyson, W. R. See Cekirge, H. M.
Tyul'kin, V. A. See Brekhovskikh, S. M.
Tyulyaeva, N. G. See Krikorov, V. S.
Tyurin, V. M. See Khabarova, L. I.
Tyurn, E. Yu. See Shteinberg, Yu. G.
Tyustin, V. A. See Dolmatov, Yu. D.

U. S. Bureau of Mines Mining technology research (1) 34*j*; Minerals in the U. S. economy—ten-year supply-demand profiles for mineral and fuel commodities (1) 48*e*.
Uchida, Kenji See Gomes, John M.
Uchida, Kunio See Otake, Takeshi
Uchida, Masao See Sato, Yasuo
Uchikawa, Hiroshi, and Kato, Hajime Retarding setting time of rapid hardening cement, P (9) 197*e*.
Uchikawa, Hiroshi, and Tsukiyama, Koichi Effect of shape of pore and aggregate on the stress-strain distribution in hardened cement paste determined by finite element method (3) 51*c*; Structure and strength of hardened special superhigh early-strength cement (jet cement-regulated set cement) paste (5) 101*i*.
Uchno, J. J., Bradt, R. C., and Hasselman, D. P. H. Fracture surface energies of magnesite refractories (9) 209*f*.
Udagawa, Shigekazu See Otouma, Takashi
Udupa, M. R. See Giridharan, A. S.
Ueda, S. See Tsunashima, A.
Ueda, Yoshihiko See Fukuda, Yoshiharu
Uei, Isao See Hayashi, Kunio
Uemura, Chikao, Hattanda, Takatsugu, Shinoyama, Seizi, and Imamura, Yoshihiro Preparation of garnet films for magnetic bubble (9) 218*f*.
Uemura, Takuro Performance of ladle bricks in use at Wakayama steel mill (5) 118*g*.
Uemura, Takuro, and Niwa, Shyobei Development of 3-layer sliding nozzle for practical use (5) 116*e*.
Uemura, Yoichiro See Inomata, Yoshizo
Ueno, Seiichi See Ooba, Shigeki
Ueno, Tsutomu, Moriya, Yoshiro, Komiyama, Toru, and Hayami, R. Trends in glass research at Government Industrial Research Institute, Osaka (1) 12*j*.
Ufimcew, W. Effect of moisture content of raw mix on cement burning by a gas sorption method (9) 194*e*.
Ugai, Ya. A. See Dzampaev, Kh. S.
Ugai, Ya. A., Yatsenko, O. B., Maksimenkov, N. V., and Averbakh, E. M. Preparation of PbS and CdS films from aqueous solution of thiourea (3) 74*e*.
Ugryumova, M. A., and Anan'eva, A. A. Piezoceramic material, P (3) 62*b*.
Uher, Joseph F. Treating sheet steel, P (1) 5*g*.
Uhl, Dieter See Baeuerlein, Rudolf
Uhlig, Albert R. Apparatus for making blown plastic articles, P (7) 161*b*; Blown bottle having a ribbed interior surface, P (9) 204*e*.
Uhlmann, D. R. See Hopper, R. W. ; Kingery, W. D. ; Renninger, A. L.
Ujima, Janina, Stec, Roman, and Stadnik, Marianna Chemical activity of lime (1) 2*e*.
Ujma, Z., and Handerek, J. Phase transitions and spontaneous polarization in $PbZrO_3$ (3) 90*j*.
Ukhina, E. V. See Gaiduk, A. P.
Ukhova, T. V. See Kol'tsov, S. I.
Ukita, Junichi Resinoid wheel containing trimanganese tetraoxide and ferric oxide fillers, P (9) 193*h*.
Uklein, E. D. See Ivanov, I. A.
Ulbrecht, J. See Chavan, V. V.
Ulbrich, R. W. High-temp. radiating lining, P (3) 69*g*.
Ulin, V. I. See Voloshchuk, A. M.
Ulisch, Guenter Porous shaped inorganic structures using gas-laden molecular sieve zeolites, P (7) 167*j*.
Ulial, B. See Shah, R. G.
Ulmeanu, S. See Schellbach, G.
Ulmer, G. C. See Wasilewski, P.
Ul'yanov, A. G. See Nekrasov, Z. I.
Ul'yanova, G. G. See Zaionts, R. M.
Umebayashi, Seiki, and Kobayashi, Kazuo β-Si_3N_4 solid solution prepared from volcanic ash and Al powder in N_2 (1) 35*d*.
Umebayashi, Seiki, Kobayashi, Kazuo, Haglo, Tsuyoshi, and Tokuhiro, Yunosuke Sintered materials from volcanic ash and Al powder (7) 186*a*.
Umegaki, Takao See Kanazawa, Takafumi
Umeki, Masatoshi See Oka, Izumi
Uminskii, M. V. See Trunov, A. M.
Uno, Tetsuo See Nishikawa, Tomozo
Unoki, Hiromi See Miura, Shinsuke
Unrod, V. I. See Ordan'yan, S. S.
Unruh, H. G. See Sailer, E.
Updegrove, Louis B. Method and apparatus for drying particulate materials, P (3) 79*h*.
Upton, Lee O. Photochromic multifocal lenses, P (3) 62*a*.
Urabe, Kazuyori See Otouma, Takashi
Urakawa, Tadahiko See Suzuki, Kazutaka
Urban, Peter Coal liquefaction process, P (3) 81*j*.
Urnes, Sigmund See Bhat, C. V. ; Guaker, R. ; Jose, V. R.
Urry, L. F. Effect of heatup on the performance of Mg batteries (1) 25*h*.
Urusovskaya, A. A., and Knab, G. G. Early stages of irradiation hardening of LiF single crystals (9) 230*e*.
Urzhenko, Anatoly M. See Mchedlov-Petrosyan, Otar P.
Usami, Tamotsu See Otsuka, Kanji
Usatikov, I. F. Basic properties and service life of sheaths and pipes from pure oxides (1) 16*h*; Effect of technological factors on the properties of paraffin suspensions from pure oxides (1) 17*g*; Strength of castings containing thermoplastic binders (1) 20*e*. See Bulakh, V. L. ; Tsigler, V. D.
Usatikov, I. F., Ansimova, T. A., and Ksenz, I. I. Effect of the gaseous medium on the creep of high-alumina refractories (1) 17*b*.
Usatikov, I. F., Ansimova, T. A., Ksenz, I. I., and Slzenko, A. S. Refractories for stopperless closing devices (5) 119*h*.
Usatikov, I. F., Bulakh, V. L., Eltysheva, A. A., and Rud, R. F. Mfg. Dinas brick for use in large high-production coke ovens (1) 18*e*.
Usatikov, I. F., Kornev, V. V., and Gal'chenko, T. G. Oxidation of C and graphitized blocks (5) 118*f*.
Uschold, Thomas See Waechtler, Hans-Juergen
Ushakova, I. M. See Kornilov, A. N.
Ushakova, L. K. See Mazo, E. E.
Usherov-Marshak, Alexander V. See Mchedlov-Petrosyan, Otar P.
Ushida, Yoshihiro, and Yamada, Tessho Thermo-sensor for exhaust gas temp. of automobiles (9) 212*g*.
Ushio, Masumi Synthesis of large single industrial crystals: VIII, V_2O_5 flux-growth of emerald single crystals (9) 240*d*; Synthesis of large single industrial crystals: IX, Temp. distribution and thermal convection in a molten V_2O_5 flux for emerald single crystal synthesis (9) 240*f*.
Ushizima, Shigemi Improvements on continuous slab reheating furnaces and the refractories (7) 177*b*.
Uskokovic, D. Activated sintering (5) 135*f*.
Uskokovic, D., Petkovic, J., and Ristic, M. M. Kinetics and mechanism of sintering under constant heating rates (9) 234*d*.
Uskov, V. A. Diffusion of fast impurities in Si (5) 137*g*.
Uskov, V. A., Sorvina, V. P., and Fedotov, A. B. Effect of complexing on the diffusion of Co in GaAs (5) 137*b*.
Uspenskii, V. A., Podolyaka, A. N., and Khariamova, T. N. Theory of condensation of suspensions (9) 241*i*.
Ustimovich, A. B., Pinaeva, M. M., Kuznetsova, V. V., Shul'man, L. D., and Sleptsov, S. E. System Eu_2O_3-Gd_2O_3-Ta_2O_5 containing 25, 50, and 75 mol% Ta_2O_5 (5) 146*a*.
Ust'yantsev, V. M. See Ignatova, T. S. ; Khoroshavin, L. B.
Ustyugov, A. A. See Perepelitsyn, V. A.
Utida, T. See Yamamoto, Akio
Utkina, T. D. See Ivanova, V. M.
Utsumi, Kazuaki See Kimura, Masakazu
Utsumi, Kazuaki, Tsubouchi, Norio, and Ohno, Tomeji $BaTiO_3$ base ceramic composition having a high dielectric constant, P (3) 76*b*.
Utsunomiya, Taizo See Toide, Takashi
Uvarova, A. S. See Lukantsever, A. L.
Uwe, Hiromoto See Miura, Shinsuke
Uyeda, Yoshio See Lee, Leonard S.
Uzan, Jacob Apparatus for 2-dimensional measurement of shrinkage resistance of soils (7) 175*f*.
Uzberg, L. V. See Ignatova, T. S.

Vachev, D., Stoichev, E., and Kharizanova, L. Refractory cellular concrete (9) 196*a*.
Vaganov, A. B., and Zavyalov, V. V. Measurement of the properties of ferromagnetic Fe films during their deposition (9) 235*a*.
Vagapova, R. V. See Gilod, V. Ya.
Vahakallio, Pentti, and Makela, Kari Method for calculating restraining moments in unreinforced masonry structures (5)

114*j*.

Vaitkus, J. See Baltramiejunas, R.

Vaitkus, J., and Jarasiunas, K. Self-diffraction of laser beams by light-induced phase lattice in CdSe (1) 45*h*.

Vakhidov, Sh. A. See Antonov, V. A.

Vaks, V. G., Zein, N. E., and Strukov, B. A. Theory of ferroelectrics of KH_2PO_4-KDP type (9) 241*j*.

Val'berg, G. S., Drepin, N. F., Kopeliovich, V. M., and Pyatkina, K. T. Increase of speed of rotary kilns accelerates clinker formation (1) 3*b*.

Valencourt, L. R. See Davis, H. T.

Valente da Cruz, Carlos R. Refractories for small- and medium-capacity glass tank furnaces (9) 211*a*.

Valentine, James M. Foundry mold or core, P (9) 213*c*.

Valet, Peter-Michael, Pluschkell, Wolfgang, and Engell, Hans-Juergen Equilibria between MgO-FeO-Fe_2O_3 solid solutions and O (1) 38*d*.

Valiela, Jose Decorating ceramic and glassware, P (9) 204*b*.

Valigi, Mario, and Cimino, A. System TiO_2-MnO_x--a structural, thermogravimetric, and magnetic study (7) 188*a*.

Valikhanova, N. Kh. See Volkov, V. L.

Valinchene, B. A. See Adomavichyute, O. B. B.

Vallabhan, C. V. G. See Ducker, W. L.

Valles, Pedro See Huch, Richard O.

Vallet, Pierre Thermodynamic properties of solid wustite below 911°C (7) 188*j*.

Valov, V. A. See Belyantsev, A. M.

Valsiunas, A. See Bubelis, J.

Val'yano, G. E. See Filatova, V. N.

Valyanskaya, T. V. See Belov, K. P.

Valyashko, E. G., Pleskacheva, T. B., and Tyapkina, N. D. Effect of heat treatment on the electrical parameters and impurity photoconductivity in *p*-InSb (5) 137*h*.

van Loo, T. J. See Oonk, H. A. J.

vanAss, H. M. J. M. See vanGemert, W. J. Th.

vanAss, H. M. J. M., and Stevels, J. M. Effect of dissolved heavy water on the internal friction of Li metaphosphate glasses containing 1% K metaphosphate (1) 7*e*; Internal friction and dielectric losses of mixed alkali—alkaline-earth metaphosphate glasses (1) 9*b*; Internal friction of mixed alkali metaphosphate glasses: II, Discussion (1) 9*e*.

VanCakenberghe, Jean L. Plasma deposition of thin layers on substrates, P (1) 29*d*; Device for manufacturing thin layers of mineral substances, P (3) 76*h*.

VanCaporali, Ronald See Smay, Gary L.

Vance, M. W., and McDermott, J. F. Improvement of soaking pit recuperator tube life using thermal-stress analysis (9) 210*c*.

Vance, Macy W. See Blome, James C.

VanDaal, H. Process and apparatus for the mechanical production of bricks at least one surface of which has the appearance of a hand-formed brick, P (9) 207*i*.

vandeGraaf, M. A. C. G., Lodder, J. C., and Burggraaf, A. J. Microstructure development and crystallization kinetics of $PbTiO_3$ forming from a PbO-TiO_2-Al_2O_3-SiO_2 glass (1) 9*h*.

VandenHoek, W. J., and Klessens, W. C-F transport reactions in C-filament incandescent lamps (5) 135*e*.

VandenWittenboer, Cornelus W. T. See LaGrouw, Coenraad M.

Vanderborgh, N. E. See Phillips, J. R.

VanderHorst, J. M. A. Magnetite-coated articles, P (3) 69*j*.

vanderMarel, H. W., and Beutelspacher, H. Atlas of Ir Spectroscopy of Clay Minerals and Their Admixtures, B (7) 189*j*.

VanderRijst, H. See Schuiling, Roelof D.

vanderWeg, W. F. See Turos, A."

VanderWesthuizen, H. J., VanNiekerk, C. A., and deWet, W. J. Glass resistance measurements (3) 57*i*.

vanderZiel, J. P., and Ilegems, Marc Interference filters—single crystal multilayer AlAs-GaAs (9) 217*j*.

vanDijk P. M. Enameling processes, particularly for hot-water tanks (3) 54*a*.

VanEgmond, A. B. See Cordfunke, E. H. P.

Vanek, James C. See Ammons, Vernon G.

Vanek, M. See Kara, I.

VanEsdonk, Johannes, and Hornman, Johannes Gas discharge panel having electrodes secured to flat insulating plates by means of glaze, P (5) 127*j*.

vanGemert, W. J. Th., vanAss, H. M. J. M., and Stevels, J. M. Internal friction and dielectric losses of mixed alkali borate glasses (1) 9*c*.

vanGils, Gerald E., and Kalafus, Edward F. Glass fibers coated with composition adhesive to rubber, P (9) 205*c*.

VanGordon, Donald V., and Collins, R. E. Mid-1970's imbalance in zircon supply and demand (1) 34*h*.

vanKonijnenburg, Jan T., Kieftenbeld, Erik A., and Schotman, Emiel F. Effect of water spray on sand-lined steel ladles (9) 209*a*.

VanLanduyt, J. See VanTendeloo, G.

VanLanduyt, J., VanTendeloo, G., and Amelinckx, S. Direct imaging of two-dimensional charge density waves and commensurate superlattices in $NbTe_2$ and $TaTe_2$ (5) 137*h*.

VanLierde, Walter J. Nuclear fuel, P (7) 174*b*.

vanLoo, W. Luminescence of $PbMoO_4$ and $PbWO_4$: I, Experimental; II, Discussion (1) 41*e*.

VanNiekerk, C. A. See VanderWesthuizen, H. J.

vanOirschot, Theodorus G. J., Nijman, Willem, and Fougeres, Marc P. A. Growing epitaxial layers from the liquid phase, P (7) 172*h*.

Vanoverschelde, A., Salmer, G., Ramaut, J., and Meignant, D. Use of punch-through diodes in self-oscillating mixers (1) 27*f*.

vanRensburg, W. C. J. Changing pattern in the world's supply of minerals (9) 225*h*.

vanSanten, Aart, and Elofsson, Kjell Device for refueling a nuclear reactor having a core comprising fuel assemblies, P (1) 30*e*.

VanTendeloo, G. See VanLanduyt, J.

Van Tendeloo, G., vanLanduyt, J. and Amelinckx, S. Electron microscopic observations of the domain structure and the diffuse electron scattering in quartz and in Al phosphate in the vicinity of the $\alpha \rightleftharpoons \beta$ transition (9) 231*h*.

Vantini, N. See Faccenda, V.

VanUitert, L. G. See Camlibel, I. ; Patel, J. R.

VanVoorst, G. See Cordfunke, E. H. P.

Varady, Tibor See Tamas, Ferenc

Varaneckas, J., Montrimas, E., and Rakauskas, J. Effect of irradiation dose rate on fatigue of electroradiographic layers of Se (1) 37*c*; Restoration of photosensitivity in electroradiographic layers of Se fatigued by X radiation (1) 45*g*.

Varela, Juan C. See Rossini, Angel R.

Varfolomeev, M. B., Shostak, I. S., Sotnikova, M. N., and Plyushchev, V. E. X-ray study of β-Sb_2O_4 (5) 147*j*.

Vargin, V. V., and Rudenko, L. V. Thermomechanical properties of enamel coating compositions (9) 198*b*.

Varina, T. M. See Veremeichik, T. F.

Varlamov, V. P. See Toporkova, A. A.

Varma, J. See Bhandari, S. S.

Varner, James R., and Oel, Heribert J. Effect of surface defects on the strength of glass rods (1) 7*i*; Surface defects their origin, characteriztion, and effects on strength (7) 160*d*.

Varotsos, P., and Mourikis, S. Activation energies for reorientation of complexes in Cs halides doped with Cd^{2+} and Pb^{2+} (1) 35*b*.

Varriot, M. Weighing systems and their characteristics (3) 79*b*.

Varshal, B. G. See Epel'baum, M. B. ; Keshishyan, T. N.

Varshneya, A. K. Kinetics of ion exchange in glasses (7) 158*d*.

Varshneya, A. K., and Petti, R. J. Finite element analysis of stresses in ion-exchanged glass (3) 57*f*.

Vartanyants, Z. Kh. See Leshchenko, N. P.

Vary, Alex, and Sorg, R. L. Isometric scan method for ultrasonic evaluation of composite panels (1) 18*d*.

Vasanelli, L. See Manfredotti, C.

Vashchenko, A. I. See Klimkovich, N. S.

Vasil'chenko, V. S., Kabashnyi, N. P., Eingorn, S. B., and Shcherbina, R. E. Mechanization of loading refractory bodies on kiln cars (9) 210*c*.

Vasilec, O. See Dobrovolskis, Z.

Vasil'ev, L. N. See Seregin, P. P.

Vasil'ev, M. A. See Samsonov, G. V.

Vasil'ev, N. G. See Mank, V. V.

Vasilev, Sv. See Levcheva, Khr.

Vasil'ev, V. I. See Ryss, M. A.

Vasilev, Ya. T. See Bryukner, F.

Vasil'eva, I. A., and Sukhushina, I. S. Partial and integral thermodynamic properties of nonstoichiometric V_2O_3 (5) 143*h*.

Vasil'eva, I. A., Sukhushina, I. S., and Balabaeva, R. F. Thermodynamic properties of V_nO_{2n-1} (n = 4-9) at high temps. and 298.15 K (5) 146*b*.

Vasil'eva, L. F. See Gitis, E. B.

Vasil'eva, L. Ya., and Moroz, I. I. Relation of the elastic modulus and impact strength of a ceramic body to its porosity (1) 23*e*.

Vasil'eva, M. P. See Bazakutsa, V. A.

Vasil'eva, T. A., Konstantinov, V. V., and Pavlov, A. P. Reaction of slag-silicate binder with silty and clayey additives (9) 196*i*.

Vasiliu, Alina See Braniste, C.

Vasil'kov, S. G., Ellern, M. A., and Erekhimzon-Logvinskii, L. Yu. Increasing the productivity of agloporite gravel from ash of heat- and electric power plants (9) 195*h*.

Vasil'kov, S. G., Zhurba, A. B., and Brodova, S. V. Structure formation in Agloporite made from heat and power plant ash and coal beneficiation wastes (5) 101*h*.

Vasil'kovskii, V. A., Kovtun, N. M., Kupriyanov, A. K., and Nikitin, S. A. NMR studies of $Gd_xY_{1-x}Fe_2$ compounds (1) 42*f*.

Vasilos, Thomas See Motta, Salvatore ; Sellers, David J.

Vass, M. See Constantinescu, Mihaela

Vasserman, I. M. Boundary conditions for the formation of primary nonstoichiometry in metal oxides (5) 135*d*.

Vasterling, Paul F. High-temp.-resistant products, P (5) 122*a*.

Vasu, Laura Electrical conductivity of molten alkali halides (3) 87*b*.

Vasudevan, Padma, and Kumar, T. Effect of sugars on the setting and hardening of cements (7) 151*j*.

Vatolin, N. A. See Serebryakova, A. V.

Vatolkin, Evgeny See Butuzov, Vladimir P.

Vaughn, Howard A., Jr., and Vodicka, Vincent Rendering vitreous surfaces water repellent and dirt deposit resistant, P (9) 206*c*.

Vaupel, Horst Fluorescent X-ray analysis—a rapid method even for single samples (9) 222*h*.

Vavilov, Yu. V. See Belyaev, R. A.

Ved, E. I., Bludov, B. F., Piven, N. I., and Bocharov, V. K. Products of solidification of sulfomagnesia cement containing an additive of electrothermophosphorus slag (1) 3*c*.

Ved, E. I., Bocharov, V. K., and Zharov, E. F. Study of products of hardening water-resistant oxychloride cement on basis of caustic dolomite and alumino- and iron-phosphate additions (9) 197*a*.

Ved, E. I., Piven, N. I., Bludov, B. F., and Sidorova, T. A. White cement from dolomites (5) 102*b*.

Vedam, K., Kirk, J. L., and Achar, B. N. N. Piezo- and thermooptic behavior of spinel ($MgAl_2O_4$) (7) 185*b*.

Vedrine, Jacques C. See Che, M.

Veerappan, M. See Desayi, P.

Vegas, A., and Cano, F. H. Ca orthoborate $(BO_3)_2Ca_3$ (1) 34*e*.

Vehida, S., Wen, C. Y., and McMichael, W. J. Role of holding tank in lime and limestone slurry SO_2 scrubbing (7) 175*a*.

Veith, Richard Piezoelectric body, P (7) 173*e*.

Veksler, S. F. See Zhukovskii, V. M.

Veksler, S. F., and Zhukovskii, V. M. Synthesis of Ba_2MoO_5 and Ba_3MoO_6 (1) 46*i*.

Vekua, V. L., Dzhioev, R. I., Zakharchenya, B. P., and Ivchenko, E. L. Determining the sign of the g-factor and epitaxial film deformation during transverse optic orientation effect in semiconductors (3) 72*g*.

Velde, Bruce, and Odin, G. S. Further information related to the origin of glauconite (7) 182*g*.

Velghe, Firmin See Schoonheydt, Robert A.

Velikanov, A. A. See Kusnitsyna, T. A.

Velikanova, T. Ya. See Eremenko, V. N.

Velikhodnyii, V. G. See Rozhanskii, A. I.

Velikin, B. A. See Karklit, A. K. ; Kuznetsov, Yu. D.

Velikodnyi, Yu. A. See Trunov, V. K.

Velikov, L. V., Prokhorov, A. S., Rudashevskii, E. G., and Seleznev, V. N. Antiferromagnetic resonance in $FeBO_3$ (1) 35*i*.

Velikova, P. See Buchvarov, S.

Velina, O. F. See Belousenko, A. P.

Vella, P. J. See Goruk, W. S.

Veltri, Richard D., Jacob, Bernarr A., and Galasso, Francis S. Large-diameter C-B fiber (3) 54*c*.

Venero, Agustin F., and Westrum, Edgar F., Jr. Heat capacities and thermodynamic properties of $Li_{0.5}Fe_{2.5}O_4$ and $Li_{0.5}Al_{2.5}O_4$ from 5 to 545°K (7) 182*j*.

Venevtsev, Yu. N. See Groznov, I. N.

Vengsarkar, B. R., and Saksena, M. D. Spectrographic determination of trace impurities in Sr carbonate (3) 81*a*.

Venitskii, V. N., Eremenko, V. V., and Matyushkin, E. V. Birefringence of light on excitation of nonlinear ferromagnetic resonance in Fe-Y garnets (9) 227*c*.

Venkatu, Doulatabad A. Doping Si semiconductors using an impregnated refractory dopant source, P (3) 76*i*.

Venuat, M. Effect of high temp. and pressures on the hydration and hardening of cement (5) 99*h*.

Venzel, L. I., Mishel, V. E., and Listvina, E. I. Interaction of enamel coatings with metal chloride melts (9) 198*i*.

Veprek, Otokar See Satava, Vladimir

Verbeek, Wolfgang Production of shaped articles of homogeneous mixtures of SiC and Si nitride, P (9) 214*b*.

Verdiyan, M. A., Krykhtin, G. S., Nikolaev, E. V., and Dubovik, A. I. Calculation of degree of filling of mill chambers by grinding bodies (1) 2*c*.

Verdonk, A. H., Nedermeijer, J. and Loverman, J. W. A. Thermogravimetric method for accurate determination of thermodynamic quantities at high temps. (7) 176*i*.

Verebeichik, N. M. See Ainshtein, R. G.

Vereecke, Frank J. See Hemsath, Klaus H.

Veremeichik, T. F., Grechushnikov, B. N., Varina, T. M., and Sviridov, D. T. Absorption spectra and scheme design for the levels of Fe^{3+} and Mn^{2+} ions in single crystals of Y-Al garnet, orthoclase, and $MgSiO_3$ (9) 226*e*.

Veres, Frank Sealant for glass-ceramic surfaces, P (5) 104*c*.

Vereshchagin, Leonid F., Preobrazhenskii, Alexandr Ya., Stepanov, Vasily A., and Voblikov, Valentin S. Polycrystalline diamond aggregates of predetermined shape, P (7) 167*i*.

Vereshchagin, Leonid F., Semerchan, Alk A., Modenov, Vitaly P., and Bocharova, Tamara T. Diamond-metallic materials, P (3) 49*d*.

Vereshchak, V. M. See Paderno, Yu. B.

Vergano, Peter J., and Smith, William E. B doping of semiconductors, P (5) 126*j*.

Verges, Rene See Coutures, J. P.

Vergouwen, A. A. See Oonk, H. A. J.

Vergouwen, Lideke See Schuiling, Roelof D.

Verhaegen, J. P. See Fierens, P.

Verheyen, Willy, Raes, Andre, Coopmans, Jean P., and Lambert, Jean L. Glass cutting, P (5) 112*d*.

Verina, E. V. See Luginina, I. G.

Verlotskii, A. A. See Galdina, N. M.

Verlotskii, A. A., and Rybalkin, P. T. Temp. fields in the molding of electrically melted high-ZrO_2 refractories (1) 20*f*; Effect of refractory composition on the formation of cracks in baddeleyite-corundum castings (5) 117*b*.

Verma, T. N., Ghosh, B. N., Rao, B., and Swaminathan, K. S. Development of carbonaceous lining material for blast furnace trough and runner (9) 208*i*.

Verspui, Gerrit See Knippenberg, Wilhelmus F.

Verstegen, Judicus M. P. J., Radielovic, Dragutin, and Manders, Lambertus W. J. Luminescent coating for low-pressure mercury-vapor discharge lamp, P (5) 113*g*.

Vertes, Attila, Komor, Maria, and Tamas, Ferenc Reaction between brownmillerite and water in the presence and absence of $MgSO_4$ and hydrated lime (5) 101*j*.

Vertes, Michael A., and Ronzio, Richard A. Purifying technical-grade Mo oxide, P (5) 135*b*.

Vertesffy, Katalin See Balint, Pal

Vertsimakha, Ya. I., Gnatenko, Yu. P., and Rozhko, A. Kh. Optical absorption of CdS crystals with Ni impurity (9) 236*a*.

Verulashvili, R. D. See Kutateladze, K. S.

Verweel, J. See Pockrand, I.

Veselkov, E. A. Drying and decomposition of basic Mg carbonate (3) 82*j*.

Vetyukov, M. M., Dyblin, B. S., and Chervonko, E. I. Anodic effect during electrolysis of cryolite-Al_2O_3 melts (9) 226*i*.

Vezzoli, G. C., Walsh, P. J., Kisatsky, P. J., and Doremus, L. W. Radiation emission during the on state in a noncrystalline chalcogenide threshold switch (9) 238*f*.
Viaud, Jean L. See Delafosse, Jacques
Vicenzini, P. Laboratory tests for frost behavior of ceramic building materials (9) 207*d*.
Vichr, Miroslav Process and apparatus for growth of crystals, P (3) 77*b*.
Vickers, Michael Glass medallions in Oxford (3) 49*f*.
Victoria, J. See Pareja, R.
Viddinoff, N. See Cuenod, M.
Viechnicki, D. J. See McCauley, J. W.
Viehmann, W., Eubanks, A. G., Pieper, G. F., and Bredekamp, J. H. Photomultiplier window materials under electron irradiation—fluorescence and phosphorescence (3) 58*a*.
Viehweg, J. See Reichelt, K.
Vieira da Silva, Lacy, and Vieira, Jose M. Systematics for the development of refractory bodies (9) 212*d*.
Vieira, Jose M. See Vieira da Silva, Lacy
Vig, John R. See Hafner, Erich
Vigano, Giovanni Trends and prospects in brick production technology (9) 207*d*.
Vigdorovich, V. N. See Kuznetsova, S. K.
Vigdorovich, V. N., Zavodyan, A. V., and Orlov, P. B. Distribution of B in thin diffusion layers of Si (5) 137*j*.
Vignolles, J. Apparatus for simultaneously spraying granular material and a binder, P (1) 31*a*.
Vigo, Francesco M. See Foley, Kevin M.
Vijayaraghavan, S. R. See Ghosh, R. K.
Vijh, Ashok K. See Diggle, John W.
Viktorova, Yu. N. See Boguslavskii, I. A.
Viktorovskii, I. V. See Gutenev, M. S. ; Karbanov, S. G.
Vilaro, Josefina See Arribada, Jorge
Vilcu, Rodica, and Misdolea, C. Significant structure theory. Heat of mixing and ternary excess enthalpy in reciprocal fused salts mixture Na,K||Cl,Br (3) 91*e*.
Vil'k, Yu. N., Danisina, I. N., and Omel'chenko, Yu. A. Reaction of Re with ZrC at high temps. (3) 91*e*.
Vinard, Daniel R. Blow molding for mfg. grinding wheels, P (9) 212*d*.
Vincent, Gary A. Electrical devices containing nitroarylsiloxane dielectric fluid, P (1) 28*h*.
Vincent, Peter I. See Priddle, John E.
Vincent, Thomas C. See Kauders, Herbert J.
Vincente Hernandez, M. A. See Sanchez Camazano, M.
Vincenzini, P., Biffi, G., and Ortelli, G. TiO_2 as an opacifier of glazes fired at 900-1100°C (9) 216*e*.
Vinogradov, E. E., Kirilenko, I. A., Rasilov, Yu. I., and Solokha, A. F. Structure of Nd^{3+} terms in nitrate glasses (9) 203*a*.
Vinogradov, N. P., Pankov, V. I., and Sobolev, I. K. Electrical cooking of glass (9) 200*f*.
Viquesnel, A. Influence of porosity on the efficiency of self-cleaning systems (9) 198*h*.
Virgo, D. See Wasilewski, P.
Virgo, David See Seifert, Friedrich A.
Virkar, Anil V., and Gordon, Ronald S. Application of load-relaxation techniques to study subcritical crack growth in brittle materials (3) 84*g*; Crack front profiles in double-torsion specimens (3) 85*e*.
Virkar, Anil V., and Johnson, D. L. Some kinetic considerations regarding the double-torsion specimen (7) 186*g*.
Viscakas, J. See Medeisis, A.
Viscakas, J., Zindulis, A., and Sodeika, A. Preparation of polycrystalline layers of $CdSe_xTe_{1-x}$ solid solutions and their physical properties (5) 126*a*.
Visconti, I. Crivelli Progress in ceramic composites technology (9) 211*h*.
Vishnevskaya, S. S. See Vydrik, G. A.
Vishnevskii, A. S. See Eremenko, V. N.
Vishnevskii, I. I., Aksel'rod, E. I., Tal'yanskaya, N. D., and Melent'ev, A. D. Thermal conductivity of refractory fiber bodies (9) 212*e*.
Vishnyakov, A. V. See Kharif, Ya. L.
Visloguzva, E. A. See Nikiforov, A. Ya.
Visser, R. G., Schiavi, W. F., and Berard, M. F. Interdiffusion in the CaF_2-YF_3 system (1) 40*d*.
Vistosi, Raoul See Bejat, Jean
Viswanathan, M. Properties of occlusion plated nickel cermets (5) 97*c*.
Viswanathan, V. N., and Yeddanapalli, L. M. Surface properties of impregnated mixed oxide catalysts (9) 240*g*.
Vit, E. F. See Pryadko, V. M.
Vitali, G. See Corsi, C.
Vitalis, Gyorgy Geological examination of the Csoznyateto clay deposit; Geological service in clay pits (3) 82*b*.
Viting, L. M. See Kazarinova, N. G.
Vits, Hilmer Compact burner for dryers, P (1) 33*j*.
Vittoria, C. See Ganguly, A. K.
Vivien, D. See Antoine, J.
Vizot, J. See Monfort, Y.
Vladimirov, V. V. See Bondar, V. M.
Vlasenko, N. A., Zynio, S. A., and Kopytko, Yu. V. Effect of Mn concentration on ZnS:Mn electroluminescence decay (5) 138*a*.
Vlasko-Vlasov, V. K., Dedukh, L. M., and Nikitenko, V. I. Polarization optical studies on magnetization processes near dislocations in single crystals of YIG (1) 43*i*; Features of interaction between individual dislocations and 180° domain walls in YIG crystals (5) 139*b*.
Vlasse, Marcus, Chaminade, Jean Pierre, Massies, Jean Claude, and Pouchard, Michel Structure of β-$Na_2Ta_2O_5F_2$ (7) 187*f*.
V'lkova, I. See Angelov, G. ; Pankratov, V.
Voblikov, Valentin S. See Vereshchagin, Leonid F.
Vodenicharov, C. See Stanchev, A.
Vodenicharov, C. M. Electron emission of metals into insulators (5) 125*h*.
Vodenicharov, M. See Stoicheva, V.
Vodicka, Vincent See Vaughn, Howard A., Jr.
Voedisch, Virginia See Smith, Geraldine
Voelling, Axel See Lange, Ludwig
Voellmin, K. See Hasler, R.
Voelter, J. See Sklyarov, A. V.
Voevodina, Z. A. See Khabarova, L. I.
Vogel, E. M. See Gallagher, P. K.
Vogel, Werner Fine structure of glasses (1) 8*g*. See Doenitz, Fritz-Dieter ; Heidenreich, Erich
Vogt, E. Origin of ferromagnetism and antiferromagnetism in alloys of transition metals: I, Alloys of the first-row transition metals with the monovalent noble metals (1) 42*j*.
Vogt, Georg See Kratel, Guenter
Vogt, J. J. See Morain, M.
Vogt, J. J., and Morain, M. Estimation of the severity of a work place in high-temp. locations (5) 106*b*.
Vogt, O. See Bartholin, H.
Voicu, Constantin See Catrinu, Paul
Voitovich, R. F., and Pugach, E. A. High-temp. oxidation of ZrC and HfC (1) 40*d*; High-temp. oxidation of borides of the group IV metals: I, Oxidation of TiB_2 (3) 65*e*.
Vokhmyakov, A. N., Tribunskii, V. V., Kalinichenko, I. I., and Darienko, N. E. Problem of the reaction of Na hydroxide with its metasilicate (9) 238*e*.
Volchenkova, Z. S., and Nedopekin, V. M. Sc_2O_3 electroconductivity (9) 238*e*.
Volchenkova, Z. S., Nedopekin, V. M., Gorelov, V. P., and Pal'guev, S. F. Phase transitions in the system ZrO_2-Sc_2O_3 (9) 237*b*.
Volenko, A. P. See Chetkin, M. V.
Volfinger, M. Effect of the composition of dioctahedral micas on the distribution of alkaline trace elements (5) 137*c*.
Volgin, B. P. See Rychkov, V. P.
Volk, T. R. See Guinzberg, A. V.
Volkanshtein, N. V., Galoshina, E. V., and Panikovskaya, T. N. Temp. dependence of magnetic susceptibility anisotropy of transition metal crystals with a hexagonal closely packed structure (9) 241*f*.
Volke, Klaus Calculation of the rate of degassing using differential thermogravimetric curves (1) 35*e*.
Volkogon, L. M., Karpinos, D. M., Mikhashchuk, E. P., and Pavlikov, V. N. Heat-resistant ZrO_2-based ceramics (1) 18*b*.
Volkonskii, B. V. See Okorokov, S. D.
Volkov, B. A., and Kopaev, Yu. V. Phase transformations in semiconductors of the type A_4B_6 (1) 43*d*.
Volkov, D. I., Kozlova, T. M., Prudnikov, V. N., and Prudnikova, N. A. Anomalous Hall effect in holmium single crystals in the helicoidal magnetic ordering region (5) 135*h*.
Volkov, S. E. See Ershov, O. S.
Volkov, V. L. See Mal'tsev, V. T. ; Surat, L. L.
Volkov, V. L., Fotiev, A. A., Valikhanova, N. Kh., and Belyakov, Yu. M. System V_2O_5-$NaVO_3$ (9) 241*c*.
Volkova, A. See Kol'tsov, S. I.
Volkova, N. V., and Raitsis, V. I. Magnetic anisotropy and magnetostriction of Nd^{3+}-substituted YIG (1) 41*f*.
Volkova, P. I. See Serebryakova, A. V.
Volkovskaya, A. I. See Moshkina, M. K.
Vollhardt, Frohmut See Ackermann, Werner
Volodina, A. N. See Tananaev, I. V.
Voloshchenko, A. A. See Sitnik, N. P.
Voloshchuk, A. M., Dubinin, M. M., Nechaeva, N. A., and Ulin, V. I. Determination of diffusion coeffs. in adsorbents with biporous structure (3) 86*a*.
Voloshin, I. F., and Gaidukov, Yu. P. High-frequency determination of surface conductivity of Sn in a magnetic field (5) 125*a*.
Volpe, G. Thin arched roof decks in reinforced brickwork (3) 63*a*.
Vol'skii, E. P. See Bronnikov, A. D.
Volynets, F. K., Chernevskaya, E. G., and Gorokhova, E. I. Effect of pressure on the synthesis of ZnS crystal phosphors (5) 138*d*.
vonAndrian-Werburg, Hanns See Heimke, Guenther
vonBoch, Wendelin Decoration and design of tableware and facilities in decorating techniques (3) 71*b*.
vonderGonna, Ruediger See deAhna, Heinz Dieter
vonIrgens-Bergh, Ib Apparatus for producing glass spheres, P (1) 13*d*.
vonKamptz, Henning See deWys, E. Christiaan
vonMatuschka, Alfred G. See Fichtl, Walter
Vorch, K. See Hellmold, P.
Vorhaus, J. L., and Anderson, A. C. Low-temp. specific heat of vitreous SiO_2 containing H or He solutes (1) 41*d*.
Vorob'ev, Kh. S. Development of products from aerated concrete (1) 2*h*. See Akhundov, Alizakir A. O.
Vorob'ev, Yu. P., Bogdanovich, M. P., Men, A. N., and Chufarov, G. I. Solubility of Al_2O_3, V_2O_3, and Cr_2O_3 in wustite (3) 91*j*.
Vorob'eva, S. A. See Galiakberov, R. G.
Voronin, L. P. See Klyachin, V. V.
Voronin, N. V. See Landa, M. I.
Voron'ko, Yu. K., Mamedov, T. G., Osiko, V. V., and Timoshechkin, M. I. Effect of the donor-donor and donor-acceptor interactions on the decay kinetics of the metastable state of Nd^{3+} in crystals (1) 37*i*.
Voron'ko, Yu. K., and Sobol, A. A. Classification and analysis of the impurity ion clusters in $Y_3Al_5O_{12}$ (1) 36*a*; Local inhomogeneity of garnet crystal doped with rare-earth ions (1) 41*b*.
Voronov, B. K., Dudkin, L. D., and Trusova, N. N. Solid-phase synthesis of some transition metal silicides (3) 75*c*.
Vorontsova, I. V. See Boricheva, V. N.
Voropanova, L. A. See Belyaev, I. N.
Voskoboinikov, G. I. Effect of thermomechanical stresses on the strength of glazed glass plates (1) 7*c*.
Voskovnyuk, A. M. See Taranukhin, N. A.
Voskresenskaya, N. K. See Markina, I. B.
Voss, Hans Joerg Mathematical model for evaluation of the energy balance of glass tanks (7) 158*j*.
Voszka, R. See Foldvari, I.
Votava, W. E. See Smith, C. F., Jr.
Vovkotrub, E. G. See Kasimov, G. G.
Vrbecky, J., and Rihanek, S. Using hydrated lime powder for making sand-lime bricks (3) 53*h*.
Vreeswijk, J. C. A., Gossink, R. G., and Stevels, J. M. Nucleation kinetics and critical cooling rate of glass-forming liquids (1) 10*j*.
Vrijssen, Gerardus A. H. M. Vacuumtight electric leadthrough in an electric discharge tube, P (5) 114*i*.
Vrtanesyan, G. S., and Nemilov, S. V. Relation of the nature of viscosity change of glasses in liquid state and near annealing temp. (3) 59*f*.
Vu Ngoc, Kyong See Bakunov, V. S.
Vucelic, D. See Juranic, N.
Vucelic, D., Vucelic, V., and Juranic, N. Quantitative determination of specific heat by differential scanning calorimetry (3) 80*a*.
Vucelic, V. See Vucelic, D.
Vuchvarov, S., and Georgieva, L. Low-melting B-Pb glazes in multicomponent systems (3) 71*g*.
Vujatovic, S. S. See Nikolic, P. M.
Vulcheva, A. See Levcheva, Khr.
Vulcheva, S. See Ionchev, Khr.
Vulikh, A. I. See Korotkevich, M. N.
Vulkov, V., and Boyadzhieva, Kh. Setting of Ba aluminates in the presence of gypsum (3) 53*j*; Kinetics of production and stabilization of $2CaO.SiO_2$ from natural raw materials (9) 195*a*.
Vulkov, V., and Zamanchev, S. Effect and relations between several basic factors in the production of shrinkage-compensating cement from alunitized quartzites (3) 51*b*.
Vulkova, I. See Angelov, G.
Vyas, M. H., Sanghavi, J. R., and Seshadri, K. Li extraction from Indian lepidolite ores (3) 82*g*.
Vyas, M. K. R. GaAs pressure sensor (3) 73*c*.
Vydrik, G. A., and Borisova, A. Yu. Chemical composition of the vitreous phase in steatite bodies (1) 22*i*.
Vydrik, G. A., and Fedina, I. V. Synthesis of Ca hexaluminate (5) 102*c*.
Vydrik, G. A., and Vishnevskaya, S. S. Effect of the nature of raw materials on the properties of aqueous alumina slips and castings (1) 17*d*.
Vydrina, Zh. A. See Nikiforov, A. Ya. ; Ostrovskaya, P. S.
Vyrodov, I. P., Novokhatskii, D. F., Ivanova, N. A., and Zhorin, V. V. Physicomechanical properties of products of hardening slags and their differential-thermal study (9) 195*h*; Radiographic study and general analysis of products of hardening slag and slag-barite mixtures (9) 196*g*.
Vyskrebtsev, V. P. See Belousenko, A. P.
Vysotskii, D. A. See Nemets, I. I.

Wachter, William J. See Akey, John G.
Wachter, William J., and Rohrer, Wesley M. Method and apparatus for detection of nuclear fuel rod failures, P (5) 129*g*.
Wacongne, Michel See Boyer, Pierre
Wada, Masamichi, Ishida, Iwao, and Nakagawa, Isamu Glass composition, P (1) 14*h*.
Wada, Masanobu See Masuda, Yoichiro
Wada, Toshiaki See Inomata, Yoshizo
Wadsworth, Milton E. See Yu, Peter H.
Waechtler, Hans-Juergen, and Uschold, Thomas Thermoanalytical studies in cement chemistry: I, Some technique problems of derivatography (1) 3*e*.
Wagner, Endre See Molnar, Erzsebet
Wagner, G. Investigation into the phase boundary between enamel and steel (9) 198*j*.
Wagner, Volker Prefabricated brickwork (7) 163*e*.
Wagner, W. Electrical storage heating apparatus, P (9) 224*i*.
Wahl, Albert J. See Weingrad, Saul
Wahl, Roger A., and Lanz, William A. New automated plant for preparation, storage, and handling of clay (3) 82*g*.
Wakabayashi, Akira, Wakabayashi, Shigeru, Iseki, Takayoshi, and Obba, Hiroshi Mechanical strength of refractories at high temp. (3) 66*g*.
Wakabayashi, Shigeru See Wakabayashi, Akira
Wakabayashi, Shoichi See Shiraki, Yoichi
Wakayama, Haruo See Mori, Masasi
Wake, S. J. Electrolytic pretreatment for steel for vitreous enameling (5) 103*f*.
Wakefield, Robert H., Jr. See Cunningham, James A.
Wakino, Kikuo See Murata, Michihiro
Wala, Danuta See Swiecki, Zbigniew
Walchhuetter, U. Press for the manufacture of ceramic and refractory articles, P (3) 79*j*.
Walden, John See Ilardi, Joseph M.
Waldmeyer, J., and Zschokke-Graenacher, I. Simple technique in dielectric time-domain spectroscopy (3) 80*j*.
Walec, Tadeusz See Mrowec, Stanislaw
Wales, Wayne F. Producing hybrid binder for ceramic

molds, P (9) 214*a*.
Walker, B. E., Jr. See Pohanka, R. C.
Walker, Basil E., Jr., Rice, Roy W., Pohanka, Robert C., and Spann, Joseph R. Densification and strength of $BaTiO_3$ with LiF and MgO additives (5) 125*a*.
Walker, Graham S. See King, George A.
Walker, Norman I. W. Processes and apparatus for feeding material to a glassmelting tank, P (7) 162*g*.
Walker, P. L., Jr. See Bradt, R. C.
Walker, Walter L. See Argoud, Maurice J.
Wall, V. J. See Slaughter, J.
Walsh, P. J. See Vezzoli, G. C.
Walter, John L., Westbrook, J. H., and Woodford, D. A. (Editors) Grain Boundaries in Engineering Materials, B (1) 48*h*.
Walter, L. Fire-resistant Si-containing Ba cement, P (3) 54*d*.
Walters, H. V., and Adams, P. Bruce Effects of humidity on weathering of glass (7) 156*b*.
Walther, Carl K. Vibratory rumbling machine, P (5) 130*h*.
Walvekar, S. P., and Halgeri, A. B. Surface basicity, base strength, and catalytic activity of some mixed oxides containing TiO_2 (3) 92*a*.
Walvekar, S. P., Halgeri, A. B., Ramanna, S., and Srinivasan, T. N. Thermal effect on surface acidity and catalytic activity of ZrO_2-Al_2O_3 and ZrO_2-SiO_2 catalysts (9) 241*b*.
Wamser, Christian A., and Bruen, Charles P. Recovery of F, U and rare earth metal values from phosphoric acid by-product brine raffinate, P (5) 135*b*.
Wan, Che'ng, and Ghose, Subrata Inesite, $Ca_2Mn_7Si_{10}O_{28}(OH)_2.5H_2O$—a new chain silicate with "fuenferdoppelkетten" (7) 182*g*.
Wan, Chong T. See Carmichael, Donald C.
Wang, F. F. Y., and Gupta, Kedar P. Phase transformation in the oxides (1) 43*c*.
Wang, K. L., and Storms, H. A. Ge SiO_2 MIS structures studied by secondary ion mass spectrometry (9) 232*e*.
Wanlass, David R., and Sienko, M. J. Concentration dependence of superconductivity in Rb W bronzes (7) 180*f*.
Wanmaker, Willem L., and Radielovic, Dragutin Luminescent alkaline earth halophosphate, P (5) 134*j*.
Warachim, Henryk Effect of CO_2 dissolved in water on the properties of gypsum paste and gypsum products (7) 151*c*.
Ward, J. B. Strength of containers with hot-end coatings deposited from stannic chloride vapor (1) 11*b*.
Ward, John E., Jr., and Garick, Bordie B. Organic resin-coated glass fibers coated with unsaturated fatty acid ester, P (3) 61*j*.
Ward, Jose See Arribada, Jorge
Ward, Rodney L. Ni and Cr substrates of ceramic coating, P (9) 198*g*.
Ward, Truman L., and Benerito, Ruth R. Electrically conductive glasslike flims on glass on ceramic surfaces from Al and plumbite-treated cellulosics, P (5) 127*e*.
Ward, Truman L., Benerito, Ruth R., and Hebert, Jacques J. Glassy materials from plumbites and cellulosics, P (5) 113*b*.
Ware, J. O. See Gilchrist, K. E.
Ware, N. G. See Reed, S. J. B.
Waris, B. See Islam, N.
Warman, M. O. Slag attack on torpedo-ladle refractories (7) 166*h*.
Warner, A. W. See Pinnow, Douglas A.
Warner, Leadom A., and Cleveland, Joseph J. Apparatus for producing a bilayered green ceramic tape, P (1) 27*j*.
Warner, Richard D. New experimental data for the system CaO-MgO-SiO_2-H_2O and a synthesis of inferred phase relations (5) 142*e*.
Warnke, Heinrich Electrophoretic enameling (1) 4*j*. See Kaup, Friedel
Warnke, Heinrich, and Kaup, Friedel Rationalization and quality improvement by electrophoretic application of enamel (3) 54*f*.
Warren, S. E. See Longworth, G.
Wartenberg, E. W. Lustrous colored coatings, P (3) 72*f*; Toughened glass, P (5) 114*g*.
Wasa, Kiyotaka See Mitsuyu, T.
Wasai, Eiji See Kanazawa, Takafumi
Washbourne, Colin Ceramic fiber replica of a body of reticulated organic foam, P (7) 167*e*.
Wasilewska, M. See Ostachowicz, J.
Wasilewska, M., Ostachowicz, J., Lankosz, M., and Molodynska, W. Device for continuous radiometric determination of the Ca and Fe content in raw slurry for cement (3) 50*j*.
Wasilewski, P., Virgo, D., Ulmer, G. C., and Schwerer, F. C. Magnetochemical characterization of $Fe(Fe_xCr_{2-x})O_4$ spinels (5) 141*g*.
Watanabe, Akiteru Apparatus constant and penetration rate for penetration viscometry (1) 31*j*.
Watanabe, Ichiro, Inagaki, Yoshihiro, and Shimizu, Tatsuo ESR study of Mn^{2+} in Ge-Te and Ge-Te-Si glasses (1) 8*c*.
Watanabe, Jiro See Tani, Tetsuro
Watanabe, Kiyoshi See Kakegawa, Kazuyuki
Watanabe, Nobuatsu See Nakajima, Tsuyoshi
Watanabe, Osamu See Tomizuka, Isao
Watanabe, S. See Stoebe, T. G.
Watanabe, Shigeru See Tsuji, Teruaki
Watanabe, Shuichi See Mori, Masasi
Watanabe, Takashi See Niwa, Shohei
Watanabe, Tetsuo See Mase, Shunzo ; Yoshihara, Tetsuya
Watanabe, Tohru See Niizeki, Kinya
Watanabe, Yoshiaki See Tomita, Yoshimori
Watanabe, Yuji See Kondo, Katsumi
Waterbury, G. R. See Phillips, J. R.
Waterman, Dwight, Brown, Gary G., and Mills, George J. Strengthening B filaments for use in forming filamentary composites, P (3) 70*d*.
Waters, John E., Jr. Ceramic composition, P (3) 54*b*.
Watson, E. Apparatus for mfg. glass fibers, P (1) 13*c*.
Watson, E., and Ainsworth, A. J. Drying of glass sheets, P (5) 112*f*.
Watson, Keith L. Materials in Chemical Perspective, B (7) 191*f*.
Watson, Ronald H., Butler, Gregg G., Heal, Thomas J., and Littlechild, James E. Ceramic nuclear fuel pellets, P (9) 220*j*.
Watt, Kenneth R. See Gostelow, Colin R.
Watt, William See Moreton, Roger
Watts, Roderick K. Monolithic source for integrated optics, P (1) 29*a*.
Wawra, Hans H. Elastomechanical properties of U_4O_9 as an example of the effect of direction and profile (3) 77*g*.
Wayman, C. M. Phase transformations in less common materials (1) 43*c*.
Wayne, R. C. See Shelby, J. E.
Weaver, Harold L. Mineral wool insulation product, P (7) 162*c*.
Weaver, James W. See Reiner, Eugene
Weaver, W. S., Isabelle, H. L., and Williamson, F. Cement and concrete correlation (3) 50*j*.
Webb, C. E. See Reeve, K. D.
Webb, D. C. See Ganguly, A. K.
Webber, Roy A., Funk, James E., and Burdick, Vernon L. Effect of water vapor on gel formation in ethyl silicate-bonded Al_2O_3 (1) 17*g*.
Weber, H. B. Possible methods of reducing drying time by the appropriate design of the kiln setting (5) 133*d*. See Leusden, C. O. P.
Weber, H. P. See Tofield, B. C.
Weber, Horst, Gruhl, Siegfried, and Endlich, Karl H. Annealed pigments, P (7) 178*f*.
Weber, J. N., and White, E. W. Carbonate materials as precursors of new ceramic, metal, and polymer materials for biomedical application (9) 214*g*.
Weber, Martin E. See Gunkel, Alfred A.
Weber, Marvin J. Cr-rare-earth transfer in $YAlO_3$ (7) 179*j*.
Weber, Marvin J., and Monchamp, Roch R. Luminescence of $Bi_4Ge_3O_{12}$—spectral and decay properties (7) 183*f*.
Weber, Richard A. See Kurtz, Anthony D.
Webster, John S. Ladle slide gates at BSC's South Teeside Works (9) 210*b*.
Webster, R., and Jackson, B. Property requirements for fired magnesite refractories used in O steelmaking vessels (5) 119*e*.
Webster, William C. See Minnick, Leonard J.
Weems, Sterling J. Handling system for nuclear fuel casks, P (7) 174*j*.
Wei, G. C. T., and Wuensch, B. J. Tracer concentration gradients for diffusion coeffs. exponentially dependent on concentration (9) 241*i*.
Wei, J. See Ingrey, Sidney J.
Weichman, F. L. See Friedman, F.
Weidemueller, Christian, Schatz, Uwe, Boenschen, Waldemar, and Axmann, Klaus High-Al_2O_3 lining for a hot-metal mixer (9) 209*h*.
Weidemueller, Christian, and Suckow, Adolf Experiences with special refractories in the roofs of electric arc steel furnaces (5) 117*f*.
Weidmann, G. W., and Holloway, D. G. Slow crack propagation in glass (1) 11*h*.
Weier, Roman J. See Howard, Richard W.
Weiher, J. F. See Sleight, Arthur W.
Weihnacht, M., and Albrecht, G. New memory effect in Nb-Al-Al_2O_3-Pb tunneling structures (9) 235*e*.
Weiland, W. Diamonds and ceramics (9) 193*b*; Porcelain insulators rely on diamonds (9) 193*c*.
Weingrad, Saul, Wahl, Albert J., Mucha, Richard C., and Gould, Robert E. Apparatus for applying decalcomania, P (5) 124*f*.
Weinmann, Gottfried Calculation of the physical properties of glass (5) 104*e*; Importance of cullet in the glass plant (5) 107*h*.
Weiss, Rudolf Quartz raw materials for the glass industry (9) 202*g*.
Weitz, G. Stability of the Ca-langbeinite structure (9) 239*e*.
Weitze, Arthur, and Leskovar, Peter Layer circuits with conductive layers on both sides of a ceramic substrate, P (3) 76*e*.
Weldrick, G. J. See Horsley, G. W.
Weller, J. F., and Giallorenzi, T. G. Indiffused waveguides—effects of thin film overlays (3) 73*g*.
Welsh, Jay Y. Direct cooling of reduced Mn ore, P (5) 134*h*.
Welton, Wright M., Jr. Method and apparatus for making molten glass with batch guiding means, P (7) 162*a*. See Schwenninger, Ernest N.
Welty, Richard K. Fluidized reactor reduction of UF_6 to UO_2, P (1) 30*f*.
Welz, Fritz See Tolksdorf, Wolfgang
Wemple, S. H., Pinnow, Douglas A., Rich, T. C., and Jaeger, R. E. Binary SiO_2-B_2O_3 glass system—refractive index behavior and energy gap considerations (7) 154*h*.
Wen, C. Y. See Vehida, S.
Wenda, A. Vacuum enameling process (7) 154*h*.
Wendel, Kurt See Wurmb, Rolf
Wenning, William F., Jr. See Blanco, Louis A.
Wenning, William F., Jr., and Blanco, Louis A. Low-melting glass frit protective layers, P (9) 205*b*.
Wentorf, Robert H., Jr. See Hibbs, Louis E., Jr.
Wentorf, Robert H., Jr., and Rocco, William A. Catalyst systems for synthesis of cubic BN, P (3) 69*d*.
Wenzig, Wolfgang, and Spaeth, Werner Semiconductor arrangement, P (1) 29*g*.
Werber, Teodor, and Matusik, Witold Shape of the meniscus of scales growing into ceramic capillaries (1) 11*g*.
Werf, F. Painting with ceramic glazes. Exhibition by Hildegard Storr-Britz in the Central Rhine Museum in Koblenz (9) 193*g*.
Werner, Dietmar See Ebenhoech, Franz L.
Wersing, W. Hysteresis characteristics of ferroelectric ceramics (9) 217*f*.
Werth, Frank R., Fabian, Lutz, Scheler, Herrmann, and Arnold, Hannelore Determination of small amounts of SiO_2 in thin layers using atomic absorption spectroscopy (1) 36*f*.
Wertheimer, M. R. Faraday rotation in $Ce(PO_3)_3$ glass at liquid-He temps. (7) 157*a*.
Werych, Ewald R. Walking beam furnace, P (7) 178*b*.
Werynski, Bronislaw Dependence of cement strength on cement fineness (7) 150*e*.
West, A. R. Crystal chemistry of liberite, Li_2BeSiO_4, and Li_2BeGeO_4 (5) 136*a*; Phase equilibria in the system Na_2SiO_3-Li_2SiO_3 (5) 143*c*; Phase equilibria in the system Na_2SiO_3-Li_2SiO_3-SiO_2 (5) 143*d*; Crystal chemistry of some tetrahedral oxides (9) 228*j*. See Hodge, I. M.
West, Ben F. See Basque, Max G.
West, H. W. H. Future development in brick in the U.K. (3) 62*j*; Note on the suction rate test for bricks (5) 115*a*.
West, H. W. H., Ford, R. W., and Goodwin, J. F. Mortar modified with Sarabond (5) 114*j*.
West, H. W. H., and Hodgkinson, H. R. Lateral load resistance of brickwork without precompression (5) 114*i*.
West, H. W. H., Hodgkinson, H. R., and Haseltine, Barry A. Design of laterally loaded wall panels (3) 62*h*.
West, Richard Solving firing problems using lab techniques (1) 33*g*.
Westbrook, J. H. See Walter, John L.
Westenberger, John A. Where it may not pay to save energy (5) 133*h*.
Westerhuis, Karl, and Hahn, Guenther Vessel with refractory lining and cover assembly therefor, P (9) 214*j*.
Westlake, D. G. See Fisher, E. S.
Westrum, Edgar F., Jr. See Bartel, James J. ; Landee, Christopher P. ; Venero, Agustin F.
Westwig, Ralph A. See DeMunn, Clark V.
Westwood, A. R. C. See Swain, Michael
Westwood, W. D. See Ingrey, Sidney J.
Wexell, Dale R. See Flannery, James E.
Wey, Raymond See Siffert, B.
Weyl, W. A. Half century of mixed-alkali mystery (1) 8*e*; Methods of increasing the rate of homogenizing glasses (1) 9*g*; Structure of subsurface layers and their role in glass technology (7) 160*b*.
Weyl, W. A., and Marboe, E. C. Effect of mechanical and electrical stresses on the entropy of glass (1) 7*h*.
Weymouth, J. H. See Bahl, D.
Whalen, T. J., and Anderson, Anthony T. Wetting of SiC, Si_3N_4, and C by Si and binary Si alloys (1) 5*c*.
Wheat, Lawrence C. See Miller, Alfred H.
Wheeler, M. A. Analysis of surface composition by ion scattering spectrometry (1) 31*h*.
Whiscombe, John B. See Rigden, Sydney A. R.
Whitaker, Orion C. Elongated rotary drum [kiln] shell construction, P (3) 82*a*.
White, D. See Briggs, J.
White, E. W. See Weber, J. N.
White, Jack C., Fergus, A. J., and Goff, T. N. Phosphoric acid by direct sulfuric acid digestion of Florida land-pebble matrix (5) 134*g*.
White, James Refractories research: IV, Thermodynamic stability of oxide refractories (7) 166*b*.
White, R. M. Random network model for amorphous alloys (1) 11*a*.
White, William B. See Brawer, Steven A.
White, William B., and Roy, Rustum System Cr-O at high O pressures (5) 145*j*.
Whitehead, David, and Malik, S. A. Determination of ferrous and total iron in silicate rocks by automated colorimetry (1) 32*f*.
Whitehorne, A. E. Ancient and modern [insulation] (3) 81*h*.
Whitelock, Kenneth E. See Loukes, D. G.
Whitham, W., and Calderwood, J. H. Electrical and optical effects of impurity associations in crystals of NaCl (1) 38*i*.
Whittaker, E. J. W. See Wicks, F. J.
Whittaker, Mack P., Miller, Fred C., and Grindstaff, Lloyd I. High-temp. graphite fiber-graphite composites, P (7) 154*b*.
Whittingham, M. S. Mechanism of fast ion transport in solids (9) 235*b*.
Whittington, George A. Noise control in the plant (5) 130*c*.
Whitworth, D. A., Jackson, F. D., and Patrick, R. F. Fused-cast basic refractory properties for the Ar-O decarburization method (7) 165*b*.
Wich, H. See Brueckner, W.
Wickersham, C. E. See Greene, J. E.
Wickert, H. Simple approximate method for correcting the interelement effects in X-ray fluorescence analysis (3) 80*h*.
Wickham, Donald G., and Koh, Jae Chun Li ferrites for magnetic memory cores, P (9) 219*c*.
Wicks, F. J., and Whittaker, E. J. W. Reappraisal of the structures of the serpentine minerals (3) 91*g*.
Wicks, F. J., and Zussman, J. Microbeam X-ray diffraction patterns of the serpentine minerals (3) 89*j*.
Widdis, F. C. See Ramachandran, V.
Widmer, Roland See Lehmann, Hans W.
Wiebke, Guenter See Fichtl, Walter

Wieczorek, Innocenty Influence of F content on some properties of Ti enamels (5) 103*i*. See Tomsia, Antoni
Wiederhorn, S. M. Crack growth as an interpretation of static fatigue (7) 155*e*. See Lawn, B. R.
Wiederhorn, S. M., and Roberts, D. E. Technique to investigate high temp. erosion of refractories (5) 120*j*.
Wiedijk, Piet High-temp. extraction of gas from ceramics (9) 222*j*.
Wiedmann, Roland See Luderer, Manfred
Wieker, Wolfgang Behavior of silicates in aqueous solutions (5) 98*c*; Recent achievements in silicate chemistry (9) 196*j*. See Goetz, J.; Hoebbel, D.
Wielunski, L. See Barcz, A.
Wiesner, H. See Schneider, J.
Wiewiorowski, Tadeusz K., and Miller, David J. Al_2O_3 from ores, P (9) 226*f*.
Wiggins, Richard F. Apparatus for electrostatically charging workpieces for spray coating application, P (5) 103*h*.
Wiitala, James R. See Cole, Thomas R., III
Wilband, John T. Rapid method for background corrections in trace element analysis by X-ray fluorescence—an extension of Reynolds' method (3) 80*d*.
Wilbur, Benjamin C. See Wolgemuth, Larry G.
Wilcox, B. A. See Clauer, A. H.
Wilcox, Harold D., Griswold, Douglas A., and Patel, Himanshu M. Preventing degradation of Y_2O_3 phosphor, P (3) 77*b*.
Wilcox, Paul D. See Snow, Gary S.
Wilde, M. See Bremer, H.
Wilder, J. A. See Moynihan, C. T.
Wilhelm, Harley A., and McClusky, James K. U_3N_4 or U carbonitride bodies, P (9) 221*g*.
Wilk, H. F. Visible absorption and fluorescence properties of U phosphate glasses (3) 60*a*.
Wilkes, T. R. Refractory specialties (3) 68*c*.
Wilkins, B. J. S., and Dutton, R. Static fatigue limit with particular reference to glass (5) 110*c*.
Wilkins, Clifford W. Chemical vapor deposition of epitaxial garnet films for magnetic bubble applications (1) 24*i*; Thin film deposition of rare earth garnets, P (9) 220*d*.
Wilkinson, N. T. J., and Wilkinson, S. M. Rotary blending apparatus for dry powders, P (7) 175*c*.
Wilkinson, S. M. See Wilkinson, N. T. J.
Wilks, J. See Thornton, A. G.
Wilks, Ronald S., and Worrall, Joeffrey Si_3N_4, P (9) 214*g*.
Will, E. Mix control with a minicomputer at Goellheim cement works (3) 52*h*.
Will, F. G. Effect of water on beta Al_2O_3 conductivity (9) 230*f*.
Will, Georg See Schaefer, Wolfgang
Will, Herbert A. See Powell, J. Anthony
Wille, Baptist Refracting light-permeable oxid layer, P (1) 29*f*.
Willer, B. See Wruss, Werner
Willert, I. See Lebedev, E. A.; Sueptitz, P.
Willey, R. J. Cracking in ferrite pot cores (5) 124*j*.
Williams, J. Paul, Su, Yao-Sin, Strzegowski, Wesley R., and Butler, Barry L. Direct determination of water in glass (7) 156*d*.
Williams, John Surfacing composition containing aqueous resin emulsion and $CaSO_4$ hemihydrate plaster, P (7) 153*d*.
Williams, John F. See Purdy, David L.
Williams, Joseph M. See Galusha, Richard E.
Williams, R. H. See Higginbotham, I. G.; Johnson, H. R.
Williams, Richard J. See Donaldson, Colin H.
Williams, Robert O. See Landis, James P.
Williams, Wendell S., Breger, Lance, and Johnson, Marvin Ceramic models for study of piezoelectricity in solids (1) 24*f*.
Williamson, F. See Weaver, W. S.
Williamson, J. See Rogers, P. S.
Williamson, J. P. A. See Collins, R. A.
Williamson, William Owen Strength of clays at small moisture content (9) 239*i*.
Willis, L. J. See Emmony, D. C.
Willmann, Gerd Effect of time on the shape and interpretation of the DTA curve (5) 131*f*; Influence of temp. coeffs. of the properties of the materials on the DTA curve (9) 233*i*.
Wills, R. R., Cunningham, J. A., Wimmer, J. M., and Stewart, R. W. Stability of the Si Y oxynitrides (7) 187*a*.
Wills, Roger R. Reply to comment on "Reaction of Si_3N_4 with Al_2O_3 and Y_2O_3" and "Si Y oxynitrides" (3) 85*c*.
Wilmsen, C. W., and Allender, M. C. Conductance switching of thermally grown SiO_2 (9) 227*i*.
Wilrich, Peter Th., and Leers, Klaus J. Statistical considerations of the sampling of bulk materials (5) 132*e*.
Wilshaw, T. R. See Rose, M. E.
Wilson, A. D. See Barry, T. I.
Wilson, Bob G. Glass batch wetting system, P (1) 14*g*.
Wilson, Earl J., and Egger, Richard L. High-temp. capacitative strain measurement system (1) 32*b*.
Wilson, G. W., and Turner, C. Activation of ZnS films (3) 72*i*; Note on conducting glass (5) 108*c*.
Wilson, H. J. C. See Roeder, E. W. F.
Wilson, Hugh H., and Johnson, Larry D. Air pollutants emitted from brick-plant kilns (3) 62*d*.
Wilson, I. R. See Jones, A. L.
Wilson, James N. See Barclay, Francis W.
Wilson, Larry K. See Perry, Charles H.
Wilson, Louis E. Spinel and Al-base metal cermet, P (7) 154*d*.
Wilson, Martin Flotation of boric acid from Na sulfate obtained during the processing of borate ores, P (3) 83*b*.
Wimmer, J. M. See Wills, R. R.
Winer, A. A. See Collings, R. K.
Winkler, Ernel R. Film resistor, P (3) 60*j*.
Winslow, George H. Total pressure over hypostoichiometric UO_2 (5) 129*b*.
Winterbottom, A. P. See Jefferson, D. A.; Tricker, M. J.
Wintsch, Robert P. Solid-fluid equilibria in the system KAlSi$_3$O$_8$-NaAlSi$_3$O$_8$-Al$_2$SiO$_5$-SiO$_2$-H$_2$O-HCl (1) 45*d*.
Wirtz, G. P. See Humenik, J. N.
Wise, W. M. See Burdo, R. A.
Witt, Donald R. Large-pore SiO_2 and polymerization catalyst, P (7) 178*j*.
Wittmann, F. H. Action of capillary pressure in fresh concrete (7) 149*h*.
Wittmann, Theodor See Knoedler, Diethelm
Wlassak, Przemyslaw Hydrolysis and hydration of tricalcium silicate at low temps. [+20 to -10°C] (7) 151*g*.
Wlodek, Jan See Daniszewski, Zbigniew
Woehlbier, F. H. (Editor) Mechanical Properties, Vol. 1, B (5) 148*i*.
Woelk, G. Study of various models of a four-chamber lime burning kiln (5) 102*b*. See Leyens, Gerd
Woergerbauer, Rupert See Lindemann, Willi
Wojakowski, A. See Lagnier, R.; Suski, W.
Wojas, J. Photoemission from (100) and (110) GaAs single crystals (3) 90*b*.
Wojcik, K. Potential distribution in polycrystalline samples of $PbTiO_3$ (9) 218*e*.
Wojcikiewicz, Tomasz See Mrowec, Stanislaw
Wolcott, Norman G., Jr., and Thomas, Jerome D. Glass enamel medium, P (9) 205*a*.
Wold, Aaron See Bayard, Michel
Wolek, Wanda See Drozdz, Mieczyslaw
Wolf, E. See Brueckner, W.; Oppermann, H.
Wolf, Fredrich, and Heyer, W. Ion exchange on porous glasses (9) 201*i*.
Wolf, G. See Barkleit, G.
Wolf, Warren W. Glass fiber-reinforced cement, P (1) 4*a*; Core glass for fiber optics, P (5) 112*a*; Fiber optics, P (7) 161*a*. See Erickson, Thomas D.
Wolfe, William L. See Harvey, J. E.
Wolff, Elmer A., Jr. See Kinnebrew, Gerald P.
Wolff, G. Computer automation for a preheater-kiln-cooler system with a process model (3) 50*d*.
Wolfram, T., and Morin, F. J. Model for surface states and catalysis on d-band perovskites (7) 184*d*.
Wolgemuth, Larry G., and Wilbur, Benjamin C. Laminated safety glass and/or plastic, P (1) 14*f*.
Wolinski, J. M. See Dargel, L.
Wollbrandt, J., Linke, E., and Meyer, K. Emission of high energy electrons during mechanical treatment of alkali halides (1) 38*b*.
Wollhofen, G. P. Spray lubricants for drive machinery in the cement industry (5) 101*d*.
Wolters, M., Thieme, C. L. H., and Burggraaf, A. J. Electric field-induced antiferroelectric to ferroelectric phase transition in some (Pb, La)$Zr_{0.55}Ti_{0.45}O_3$ ceramics (7) 181*a*.
Wong, Joe Vibration spectra of vapor-deposited binary phosphosilicate glasses (7) 160*c*.
Wong, M. M. See Gomes, John M.
Wong, Robert, Flautt, Martin C., and Haines, Richard M. Sizing composition and glass fibers sized therewith, P (3) 62*f*.
Wonsiewicz, B. C., French, William G., Lazay, P. D., and Simpson, J. R. Automatic analysis of interferograms—optical waveguide refractive index profiles (9) 222*h*.
Wonsiewicz, B. C., and McCaughan, Daniel V. Electrical properties of metal-SiO_2-Si structures under mechanical stress (7) 170*i*.
Wood, J. H. See Boring, Michael
Wood, James R. Thermodynamics of brine-salt equilibria: I, Systems NaCl-KCl-$MgCl_2$-$CaCl_2$-H_2O and NaCl-$MgSO_4$-H_2O at 25°C (5) 146*d*.
Wood, Robin Fire without smoke in the solid waste burn up (9) 242*j*.
Wood, William G. See Shoemaker, Robert H.
Wood, William P. See Close, James R.
Woodall, J. M. See Hovel, H. J.
Woodall, Jerry M. See Kemlage, Bernard M.
Woodcock, Richard F. Optical filter for Nd laser light, P (9) 205*j*.
Woodford, D. A. See Walter, John L.
Woods, J. See Caswell, B. G.
Woodward, Carol See Howell, Frank
Woodward, Robert H. See Howell, Frank
Workman, G. M. Development of refractory linings for handling molten iron (3) 64*e*.
Worrall, Joeffrey See Wilks, Ronald S.
Worrall, W. E. Clays and Ceramic Raw Materials, B (1) 48*c*. See Akhtar, N. A.
Worrell, W. L. See Francis, R. W.
Wosinski, John F. See LaDue, Stephen E.
Wozniak, Kazimierz Lightning-conductor SiC obtained from a high-Si raw material in Acheson's furnace (3) 66*a*.
Woznicki, Marek Algorithm for determining weighed portions of raw materials for a glass batch (5) 104*h*.
Wratil, J. Cd (1) 48*c*.
Wright, A. C. Closed form equations for X-ray diffraction by interstratified clay systems: I, Randomly occurring interlamellar species (5) 135*j*.
Wruss, Werner See Kieffer, Richard
Wruss, Werner, Kieffer, Richard, Gugel, E., and Willer, B. Technological investigations in the system Si_3N_4-Al_2O_3 (7) 188*a*.
Wu, Jimmy C. C. Absorptive glass, P (1) 13*i*.
Wu, K. K. Pressure-induced polymorphic transition in Rb deuteride (3) 91*b*.
Wuensch, B. J. See Wei, G. C. T.
Wuestenhoefer, William C. See Kemlage, Bernard M.; Philbrick, John W.
Wuestner, W., and Menzel, D. Field emission investigation of adsorption and nucleation of Ag on W, and of the interaction of the deposits with O (3) 87*g*.
Wuhrer, Josef Synthetic wollastonite and diopside, P (5) 135*d*.
Wullkopf, H., and Grienke, W. Mechanical comminution of Ba ferrite (7) 171*h*.
Wunder, W. Machining steatite, TiO_2 compound, and porous ceramic workpieces with diamond tools (1) 1*b*.
Wunsch, Gerd See Ebenhoech, Franz L.
Wurlitzer, M., and Schaller, W. Photomagnetic effect and electron diffusion after-effect in Si- and Ca-doped YIG (1) 43*f*.
Wurmb, Rolf, Denni, Raymond, Dorst, Hans G., and Ilgemann, Rudolf Glass-reinforced thermoplastic molding material containing ZnS pigment, P (5) 112*i*.
Wurmb, Rolf, Freyberg, Peter, Wendel, Kurt, and Schwarz, Wolfgang Glass fiber-reinforced polyamide molding material of high impact strength, P (9) 205*b*.
Wurmb, Rolf, Kunde, Joachim, and Seydl Wolfgang Glass-fiber-reinforced polyester molding compositions of reduced flammability, P (9) 205*c*.
Wurst, J. C. See Freiman, Stephen W.; Horowitz, Neal C.
Wurtz, William O. Method and apparatus for mixing viscous materials, P (7) 175*j*.
Wyatt, K. See Lenczner, D.
Wyatt, K., Lenczner, D., and Salahuddin, J. Analysis of creep data for brickwork (5) 114*a*.
Wykrent, C., Pospisil, J., and Michalek, Z. Briqueting and burning of chalk, lime marl, and fine-grained limestone (5) 98*e*.
Wyllie, Peter J. See Huang, Wuu Liang; Irving, Anthony J.
Wylot, James M., and Greco, Edgar J. High-index optical glass, P (3) 61*j*.
Wynn, James E. See Rinaldi, Rose V.
Wynne, Peter J. Furnace skewback support with buckstay pivot, P (9) 213*d*.
Wyrwicki, R. See Cyrkler, J.
Wyszecki, Guenter See Judd, Deane B.

Yadav, V. S. See Narlikar, A. V.
Yagi, Jun See Nakamura, Harutoki
Yaglov, V. N. See Pechkovskii, V. V.
Yajima, Seishi Continuous SiC fibers (1) 16*d*.
Yajima, Seishi, Okamura, Kiyohito, Hayashi, Josaburo, and Omori, Mamoru Synthesis of continuous SiC fibers with high tensile strength (9) 212*c*.
Yakimov, S. S. See Ozhogin, V. I.
Yakovenko, L. F. See Lazovskii, V. A.
Yakovlev, V. I. See Samsonov, G. V.
Yakovleva, L. A. See Zozulya, P. V.
Yakovleva, T. I., and Katorgin, G. M. Siliceous rocks for the lining of steel-pouring ladles (5) 120*h*.
Yakuboff, Paul D. See Benson, Gustav E.
Yakubovskii, Ya. M. See Komarov, Yu. T.
Yakusheva, N. A. See Kravchenko, A. F.
Yam, V. M. See Fraifel'd, M. S.
Yamada, Koichiro See Otsuka, Kanji
Yamada, Kuniharu See Teraishi, Katsuhiro
Yamada, Osamu See Takahashi, Tatsuo
Yamada, S. See Kuwabara, H.
Yamada, Shigehiko See Kimura, Shiushichi
Yamada, Suehiro See Shimamura, Hiroyuki
Yamada, Takuaki Colored glass tableware, P (9) 204*h*.
Yamada, Tamotsu See Katayama, Kaoru
Yamada, Tessho See Ushida, Yoshihiro
Yamada, Tomoaki See Nakano, Jun'ichi
Yamada, Tomoaki, and Iwasaki, Hiroshi Ferroelectric, piezoelectric, and optical properties of $SrTeO_3$ single crystals and phase-transition points in the solid-solution systems (7) 171*a*.
Yamada, Toshio See Hirano, Jiro
Yamada, Toyoaki See Mizuno, Masao
Yamagata, Keizo See Shimamura, Gozo
Yamaguchi, Akira, and Kato, Etsuro Reaction of zircon refractories and K salt vapors (1) 19*i*; Reaction of Na-β-alumina refractory and Na salts (5) 119*d*.
Yamaguchi, Goro See Kubo, Kazuhiko; Miyabe, Hisako; Shirasuka, Kouhei
Yamaguchi, Goro, and Miyabe, Hisako Crystal structure of a defective spinel, $CoO.3Al_2O_3$, constituting Co blue pigment (1) 36*j*; Program for obtaining necessary and sufficient reflections according to space group (1) 44*b*.
Yamaguchi, Katsuo See Irie, Toshio
Yamaguchi, Shigeto Properties and applications of alumina (1) 27*b*.
Yamaguchi, Takashi, and Kimura, Toshio Kinetic studies on the precipitation of hematite from Fe-rich spinel solid solutions (9) 234*a*.
Yamaguchi, Takeshi Refractive index measurement of high refractive index glass beads (1) 11*c*.
Yamai, Iwao See Matsushita, Toru; Takahashi, Junichi
Yamaji, Akihiko See Murakami, Toshiaki
Yamamoto, Akio, Utida, T., Murata, Hiromu, and Shiro, Yuji Optically active vibrations and effective charges of dolomite (5) 143*e*.
Yamamoto, Kosei High-purity MgO—behavior of CaO and

B_2O_3 components (3) 65*c*.
Yamamoto, Nobuo, Sakai, Usaburo, and Endo, Eiji Comparative operating results of tunnel kilns with different firing systems (7) 177*h*.
Yamamoto, Shoji See Niizeki, Kinya
Yamamoto, T., Nishizawa, H., and Tsuno, K. High voltage SEM for observing magnetic domains (1) 32*c*.
Yamamoto, T., and Tsuno, K. Magnetic contrast in secondary electron images of uniaxial ferromagnetic materials obtained by SEM (3) 89*a*.
Yamamoto, Takeshi Electrically depositing glass particles on semiconductive body, P (5) 127*f*.
Yamamoto, Toshihide Dust control during natural graphite refining and pulverizing (1) 30*f*.
Yamamoto, Toyohiko See Kondo, Marekata
Yamamoto, Wataru See Kuramoto, Naoya
Yamamura, Hiroshi See Kakegawa, Kazuyuki ; Shirasaki, Shinichi
Yamamura, Hiroshi, Oshima, Hirotoshi, Shirasaki, Shinichi, and Takahashi, Koichiro Magnetism of La orthoferrites containing lattice defects (5) 141*e*.
Yamane, Masayuki See Sakaino, Teruo
Yamane, Masayuki, and Sakaino, Teruo Calculation of Young's modulus of glass from its chemical composition and density (1) 5*i*.
Yamaoka, Nobutatsu See Takahashi, Yasunori
Yamaoka, Takashi See Yoshikawa, Naohiro
Yamaoka, Yoshifumi See Takahashi, Yasunori
Yamashita, Toshiharu Reversible light-sensitive glass, P (7) 162*i*.
Yamauchi, Mitsuru See Nakamura, Ryuji
Yamazaki, Sadayuki See Katsuhara, Masahisa
Yamazoe, Hiroshi See Kanemaru, Toyonosuke
Yamshchikov, V. S., Cherkashin, N. V., Firsov, V. I., and Nazarov, I. A. Acoustic apparatus for purification of nonore building materials (9) 206*d*.
Yanagase, Tsutomu See Nakamura, Takashi
Yanagi, Hiroki See Fujimura, Sohei
Yanagi, Masamitsu, Hoshino, Mineji, and Oguri, Yasuo Quality of the expansive admixtures composed of gypsum and $3CaO.Al_2O_3.CaSO_4.12H_2O$ (7) 152*a*.
Yanagida, Hiroaki See Hayakawa, Issei ; Mizuta, Susumu ; Nagai, Masayuki ; Shimizu, Tadao ; Takata, Masasuke
Yancey, Paul J. Sodium beta alumina single crystals, P (3) 77*h*.
Yanchev, E. See Kukusheva, M.
Yang, Julie C. Thermal-shock-resistant asbestos-cement, P (5) 102*g*.
Yano, Soichi, Michikami, Osamu, and Sato, Toshihiko Process for producing magnetic [iron] oxide thin films, P (9) 219*j*.
Yano, Toyohiko See Otouma, Takashi
Yanson, I. K., and Rybalchenko, L. F. Tunnel effect in films of V and its oxides (3) 75*h*.
Yantarev, V. V. See Ivanova, V. M.
Yanushkevich, V. A. See Ivanov, L. I.
Yao, Takamu See Takahashi, Akikazu
Yaoi, Hideo See Sugita, Kiyoshi
Yariv, S., and Heller-Kallai, L. Relation between the ir spectra of serpentines and their structures (3) 91*j*.
Yarmak, O. F. See Kukolev, G. V.
Yarmolyuk, V. P. See Dutchak, Ya. I.
Yaroshevskii, L. E. See Matveev, A. I.
Yarwood, John C., Dore, James E., and Preuss, Robert K. Ceramic foam filter, P (9) 212*f*.
Yashchishin, I. N., Shevchenko, V. V., and Gorbai, Z. V. Increase in the strength of plate glass (1) 8*i*.
Yashenkova, L. N., Novoselova, S. K., and Borisova, Z. U. Effect of addition of group III-VI elements on the current-voltage characteristics of glasses of the system As-Te-Ge (5) 105*d*.
Yashina, E. T. See Kravchenko, I. V.
Yashkov, V. M. See Sassa, V. S.
Yasud, L. L. See Kostinskii, E. P.
Yasuda, Eiichi See Kimura, Shiushichi
Yasuda, Eiichi, Shibusa, Yoshihiro, Tanaka, Hidehiko, and Kimura, Shiushichi Oxidation of C (7) 184*c*.
Yasue, Tamotsu, Takehisa, Eiji, and Arai, Yasuo Thermal analysis of gypsum by thermogravimetric and differential thermal analysis of the high-temp. type, and its experimental problems (9) 197*c*.
Yates, D. J. C. Ir studies of the surface chemistry of oxides (7) 183*b*.
Yatsenko, O. B. See Ugai, Ya. A.
Yazu, Shuji See Hara, Akio
Yeaple, F. You have to know what's in the air before specifying pneumatic devices (9) 221*g*.
Yeddanapalli, L. M. See Viswanathan, V. N.
Yellowlees, John M. Fuel assembly for gas-cooled nuclear reactors, P (5) 129*e*.
Yeo, K. B., and Borowski, R. A. Optimization of slag composition and operating temp. for attaining improved AOD lining life in the production of type 409 stainless steel (3) 66*b*.
Yeow, Y. T., Lamb, D. R., and Brotherton, S. D. Influence of low-temp. annealing treatments on the interface state density of the Si-SiO_2 interface (3) 73*i*.
Yessik, M. See Sato, H.
Yokoe, Akira See Moriya, Yoshiro
Yokoi, Hideharu, Haginaka, Tetuo, and Inagaki, Mitiji Mg aluminosilicate, P (9) 226*j*.
Yokokawa, Toshio See Tamura, Seiichi
Yokokawa, Toshio, Tamura, Seiichi, Sato, Seichi, and Niwa, Kichizo Ferric-ferrous ratio in Na20-P205 melts (1) 8*f*.
Yokomizo, Yuji See Ichinose, Noboru
Yokoyama, Isao See Shiraki, Yoichi
Yokoyama, Mitsunobu See Shiraki, Yoichi
Yokoyama, Yasuo See Irie, Toshio
Yoldas, Bulent E. Transparent activated nonparticulate Al_2O_3, P (7) 163*d*.
Yoli, Alfred H. See Jones, Cecil R.
Yonemitsu, Isao D. See Tarasuk, Walter R.
Yonemochi, Osamu See Nakamura, Kazuo ; Okubo, Tsutomu
Yonezawa, Masatomo, Ohno, Tomeji, Iwase, Keizo, and Takada, Toshio Pb zirconate-titanate powder of particle size 0.02-0.2 μm and high-density piezoelectric ceramics made of it, P (9) 219*b*.
Yonushonis, T. See McHenry, K. D. ; Tressler, R. E.
Yoon, Soo-Choon, Krefft, Gerda B., and McLaren, Malcolm G. Pb release from glazes and glasses in contact with acid solutions (7) 169*j*.
Yoshida, Akaira See Shimakawa, Koichi
Yoshida, Akira, and Matuda, Osaku Formation of faujasite from the preheated mixture of Shirasu-Na_2O and their utilization: I, Preheated mixture of Shirasu-Na_2O (Na_2O:Si-O_2 = 0.6-1.2:1) (9) 232*f*.
Yoshida, Fumio, Sakamoto, Setsuo, and Tatewaki, Shoichi Glare-reducing window pane and automotive window arrangement using the pane, P (1) 14*e*.
Yoshida, Kazunori, Hashiba, Minoru, Nurishi, Yukio, and Hibino, Taizo Effects of LiF on the formation of $BaTiO_3$ from $BaCO_3$ and TiO_2 (5) 138*f*.
Yoshida, Tetsuro See Tamura, Hideo
Yoshihara, Tetsuya See Tanaka, Shunichi
Yoshihara, Tetsuya, Sawada, Hajime, and Watanabe, Tetsuo Assembling apparatus for sliding nozzle mounted on the bottom of a ladle, P (3) 69*b*.
Yoshikawa, Naohiro, and Yamaoka, Takashi Glass articles, P (5) 112*a*.
Yoshikawa, Shinsuke, and Sawa, Yuji Apparatus for producing biaxially stretched receptacles by blow molding, P (1) 13*c*.
Yoshikawa, Takayuki, Hisada, Eiichi, and Hujii, Tooru Thin-walled carbonaceous honeycomb structures, P (3) 70*d*.
Yoshikawa, Yasushi See Shibuno, Masao
Yoshikiyo, Haruo See Ikeda, Masahiro
Yoshimoto, Jiichiro See Okai, Bin,
Yoshimura, M., and Baumard, J. F. Electrical conductivity of solid solutions in the system CeO_2-La_6WO_{12} (1) 38*g*.
Yoshimura, Masahiro, and Rouanet, Alain High-temp. phase relation in the system La_2O_3-WO_3 (7) 182*c*.
Yoshimura, Masahiro, Sibieude, F., Rouanet, A., and Foex, Marc Polymorphism of $R_2O_3.WO_3$(R = rare earth) compounds at high temps. (7) 185*c*.
Yoshimura, Tsuneo Measures adopted for extending life of 40-ton electric furnace (7) 165*a*.
Yoshino, Hajime See Nameishi, Naoyuki
Yoshio, Tetsuo, and Takahashi, Katsuaki Thermal properties of glass: V, Changes in Ge coordination number and energy relations of alkali germanate crystals (5) 110*i*; Energy relations and B coordination number in alkali borates (7) 156*g*; Heats of solution of glasses (9) 200*h*.
Young, D. R. Electron current injected into SiO_2 from *p*-type Si depletion regions (9) 231*f*. See DiMaria, D. J.
Young, J. Francis See Matkovic, Boris
Young, Lawrence See Cornish, W. D.
Young, Robert G., and Reed, Allan K. Single-ended electric discharge lamp having tubular envelope with partition means that provides a helical arc path, P (1) 15*e*.
Young, Robert W., and Graf, Robert E. Absorptive glass, P (1) 13*i*; Absorptive glass, P (9) 204*b*.
Yourchak, R. P. See El-Sharkawy, A. A.
Youtsey, Karl J., and Holt, William C., Jr. Semiconducting materials, P (7) 173*g*.
Yu, H. N. See Ning, T. H.
Yu, Peter H., Hansen, Charles K., and Wadsworth, Milton E. Kinetic study of the leaching of chalcopyrite at elevated temps. (7) 183*h*.
Yudin, D. M. See Amosov, A. V.
Yudin, N. A., Sanatulin, A. Z., Shuvanov, A. D., and Figurovskii, I. A. Half century of mixed-alkali mystery (1) 8*e*.
Yudovich, B. E. See Kravchenko, I. V.
Yukino, Ken See Inomata, Yoshizo
Yunnikova, N. V., and Biochinova, E. S. Sorption of W(VI) ions by hydrated ZrO_2 (9) 239*a*.
Yura, Isamu See Onishi, Toshiyasu
Yuraev, N. D. See Abdullaev, G. B.
Yurchenko, S. E. See Ilyashenko, E. I.
Yurkova, R. S. See Mitrokhin, V. A.
Yusov, Yu. P. See Sorokin, V. N.
Yusupova, E. N. See Zubakov, S. M.
Yutina, A. S. See Drizheruk, M. E.
Yutina, A. S., and Pirogov, A. A. Lightweight foamed refractories from raw materials of the Arkalyk deposit (3) 66*c*.
Yuzbuk, D. I. See Gaodu, A. N.

Zacharias, George Basic studies on Atterberg limits (9) 227*c*.
Zaderigolova, M. M. Radio-wave method of determining underground karst forms (1) 33*b*.
Zadgaonkar, A. S., and Kakkar, S. S. Freq. dependence of attenuation constant of dielectric materials (1) 26*b*.
Zagar, Ludvik Sintering of glass powders (5) 110*b*; Pore structure of leached, phase-separated Na borosilicate glasses (7) 159*d*. See Klinger, Otto-Eberhard
Zagar, Ludvik, and Arh, Uwe Study of surface condition of water-leached glasses by means of water vapor adsorption and surface electrical conductivity (1) 12*b*.
Zagarova, S. A. See Fedorov, N. F.
Zagorodnyuk, A. V., Magunov, R. L., and Kovalevskaya, I. P. Synthesis of Ge-SiO_2 mullite (9) 240*j*.
Zagoskin, V. T. See Nemets, I. I.
Zaika, A. I. See Kukolev, G. V.
Zaionts, R. M. See Gorbacheva, M. I. ; Rodina, T. I.
Zaionts, R. M., and Ul'yanova, G. G. Lining acid-resistant articles of high density (3) 66*f*.
Zaitsev, R. O. Generalized diagram technique and spin waves in an anisotropic ferromagnet (9) 232*d*.
Zak, B. D., Chang, B., and Hadeishi, T. Current-controlled phase retardation plate (1) 25*c*.
Zakharchenko, I. N. See Dudkevich, V. P.
Zakharchenya, B. P. See Vekua, V. L.
Zakharov, A. A. See Barybin, A. A.
Zakharov, G. M., Mikutskii, V. G., Nikitinskaya, T. I., and Rodnyi, P. A. Effect of impurity traces on the physical properties of LiF (5) 137*i*.
Zakharov, G. V. Industrial design for the production of lime from cabonate raw materials (9) 224*c*.
Zakharov, M. S. See Rakhimkulov, M. G.
Zakharov, V. P. See Poltavtsev, Yu. G.
Zakharov, Yu. V., Man'kov, Yu. I., and Khlebopros, R. G. Electrical conductivity of ferromagnetic substances with a domain structure (1) 38*f*.
Zakharuk, V. G. See Dzhigiris, D. D.
Zakolodyazhnaya, O. V., Magunov, R. L., and Belyuga, Yu. V. Ge diiodide (1) 39*c*.
Zaldat, G. I. See Ryss, M. A.
Zaleskaya, I. M. See Asonov, A. N.
Zalesskii, A. V., Kadomtseva, A. M., Savvinnov, A. M., and Lukina, M. M. Magnetic properties of NMR during spin-reorientation transition in crystals of $DyFe_{0.998}Co_{0.002}O_3$ (7) 183*f*.
Zal'manovich, V. L. Improved batcher (1) 2*i*. See Kheraskov, R. A.
Zamanchev, S. See Vulkov, V.
Zambo, Janos See Solymar, Karoly
Zambon, A. See Locardi, B.
Zamyatin, S. R., and Molina, T. V. Plastic concrete masses of aluminosilicate composition (5) 118*i*.
Zandbergen, H. W. See Elemans, J. B. A. A.
Zandonadi, Alexandre Romildo Recent studies on montmorillonitic clays performed at the Institute of Technological Research, Sao Paulo (5) 134*j*.
Zanio, K. See Canali, C.
Zanker, Adam Estimating the flow of solids through openings (1) 32*i*.
Zapesochnyi, I. P. See Panev, G. S.
Zaporozhets, V. B., Mashchenko, L. V., and Shcheglova, M. D. Vitrification and crystallization capability of glasses in the system CaO-MnO-SiO_2 (5) 111*f*.
Zapryanova, A. Z., and Trandafilova, E. G. Preparation and study of SiO_2 gel for thin layer chromatography (7) 176*j*.
Zaretskii, D. F., and Lomonosov, V. V. Electron diffraction in a strong electromagnetic field by dielectric crystals (1) 32*i*.
Zaretsky, E. V. See Parker, R. J.
Zargarova, M. I., Kakhramanov, K. Sh., and Roshal, R. M. System PbS-Sb (5) 146*e*.
Zarzycki, J. See Roth, M.
Zarzycki, Jerzy See Temple, Patrice
Zaug, J. See Achour, M.
Zauli, C. Esthetics of ceramics and industrial production technology (9) 193*c*.
Zausaev, A. N. See Kuznetsov, B. I.
Zavarzina, E. I., and Sedova, R. V. Complexometric determination of sulfates in ceramic materials (1) 32*e*.
Zavilopulo, A. N. See Panev, G. S.
Zavion, John E. See Burt, Dan L.
Zavodyan, A. V. See Vigdorovich, V. N.
Zavyalov, V. V. See Vaganov, A. B.
Zazubin, A. I. See Krupnov, E. M.
Zecchin, Luigi Veriselli family in Venice in the Trecento (1) 1*g*; Chronology of Venetian and Murano glasses from 1401 to 1407 (1) 1*j*; Chronology of Venetian and Murano glasses from 1408 to 1443 (5) 97*i*; Family of Iacobo Barovier (7) 149*b*; Bortolussi's book (9) 193*j*.
Zednicek, Walter See Deilmann, W.
Zeigan, D. See Engelhardt, G.
Zein, N. E. See Vaks, V. G.
Zeissig, D. See Klose, H.
Zektser, M. P. See German, V. O.
Zelenskaya, A. T. See Kochetova, A. P.
Zeliger, G. Ya. See Katorgin, G. M.
Zelinskii, O. V. See Stadnik, B. Ya.
Zemann, J. See Fischer, R.
Zembutsu, Sakae, Toyoshima, Yoshio, Igo, Takeo, and Nagai, Haruo Properties of (Se,S)-based chalcogenide glass films, and an application to a holographic supermicrofiche (5) 109*g*.
Zemel, J. N. See Duh, K. Y.
Zemel'man, V. B., and Konkina, V. M. Solubility of Ca sulfate depends on index conditions in the wet-process production of H_3PO_4 (3) 53*a*.
Zemskov, V. S. See Roslov, S. A.
Zenaidi, Nezih, Renaud, Robert, and Josien, Francois-Andre Preparation and study of three Ca antimonide(III)-antimonates(V) (9) 238*b*.
Zendrikov, N. N. See Avgustinik, A. I.
Zentko, Antoo See Sternberk, J.
Zernov, S. L. See Peka, G. P.
Zevin, L. S. See Malinin, Yu. S.

Zeyfang, R. See Hardiman, B.
Zhabotinskii, V. A. See Krikorov, V. S.
Zharikov, E. V., Ivleva, L. I., Kuz'minov, Yu. S., and Osiko, V. V. Effect of hydroxyl groups on dielectric and optical properties of monocrystals of alkaline earth niobates (5) 137*h*.
Zharkovskii, V. I. Theory of hydration hardening of binding materials (5) 102*f*.
Zharov, E. F. See Ved, E. I.
Zhavoronkov, Yu. I., Bakhcheev, V. G., and Pshennikov, O. A. Thin-walled magnesite sleeves for the continuous casting of steel (1) 20*j*.
Zhbanov, B. V. See Bazanova, I. M.
Zhechkova, L. A., and Mukhina, R. E. Differential spectrophotometric determination of Zr in Pb zirconate titanates (9) 222*g*.
Zheludev, I. S. See Belov, V. F. ; Shuvalov, L. A.
Zhemela, N. A. See Minakov, V. A.
Zhigarovskii, B. M. See Tsiklauri, Ts. G.
Zhilova, A. N. Relation of heat capacity of glasses to the concentration of WO_3 doping impurities (3) 59*e*.
Zhitenko, L. P. See Belov, S. F.
Zhitnikov, R. A. See Mel'nikov, N. I.
Zholnerovskii, D. A. See Betikov, I. E.
Zholobova, L. S. See Rutman, D. S.
Zhorin, V. V. See Vyrodov, I. P.
Zhos, F. T. See Mazo, E. E.
Zhuchkov, Ivan I. See Derevyankin, Nikolai E.
Zhukov, A. V., and Shchelkonogova, V. N. Commercial value and profit in the production of refractories (9) 222*a*.
Zhukova, Z. D. See Bakalkin, A. P. ; Pitak, N. V. ; Tseitlin, L. A.
Zhukovskaya, A. E. See Strakhov, V. I.
Zhukovskaya, O. V. See Gorbachev, V. V.
Zhukovskii, V. M. See Veksler, S. F.
Zhukovskii, V. M., Veksler, S. F., Petrov, A. N., and Neiman, A. Ya. Kinetics and mechanism of solid phase synthesis of $SrMoO_4$ (9) 234*f*.
Zhunina, L. A. See Kostyunin, Yu. M. ; Minakov, V. A.
Zhuravlev, G. I. See Matvievskii, A. V.
Zhuravlev, V. S. See Naidich, Yu. V.
Zhurba, A. B. See Vasil'kov, S. G.
Ziegenhain, William C., and Smith, John H. High-porosity, high-surface-area, low-bulk-density alumina, P (1) 34*h*.
Ziegler, G. See Pruemmer, Rolf
Ziegler, J. F., Mayer, J. W., Kircher, C. J., and Tu, K. N. Kinetics of the formation of Hf silicides on Si (7) 171*e*.
Ziegler, Robert C. See Ronzio, Richard A.
Zielinska-Rohozinska, E. See Lefeld-Sosnowska, M.
Ziemba, B. See Dobrzanski, M.
Zilberman, Leonid B., Krakhmal'nikov, Semen B., Kudinov, Gennady A., and Kutsykovich, Dorina B. Heat insulating material, P (3) 69*d*.
Zilko, J. L. See Greene, J. E.
Zimkhovich, Z. I. See Mazo, E. E.
Zimmer, Curtis E. See Myles, Thomas A.
Zimmerman, Paul J. See Salvadore, Eugene A.
Zindulis, A. See Viscakas, J.
Zinn, Walter H. Ni container of highly enriched U bodies and Na, P (7) 174*a*.
Zint, U. See Mueller, A.
Zipperer, Michael See Muuss, Harry
Zirgulevicius, R. See Erokhina, K. I.
Zlatogorskii, M. L. See Sidorov, T. A.
Zlatokrylov, R. M. Improvement in maintenance service (1) 2*j*.
Zlatokrylov, R. M., Rublenetskii, R. I., Bogomolov, B. N., and Tkach, L. I. Critical-path method and improved repair work (1) 30*e*.
Zlomanov, V. P., Lo, Quang Fu, Gas'kov, A. M., and Novoselova, A. V. Temp.-composition diagram of the system Pb-Sn-Te (1) 47*a*.
Zmii, V. I. See Bondarenko, V. P.
Zmii, V. I., and Kovtun, N. V. Characteristics of preparing Al_2O_3 layers during their reduction by C in vacuum (5) 135*i*.
Zoglmeyr, G. Hot modulus of rupture of pitch-bonded BOF refractories (7) 165*g*; C impregnation of burned magnesite brick, P (9) 212*e*.
Zolotareva, R. S. See Koz'min, M. I.
Zolotova, E. S. See Klevtsov, P. V.
Zonn, Z. N. See Belyaninov, Yu. N.
Zonov'ev, V. I. See Bashunin, A. I.
Zope, B. D., and Moorthy, V. K. Reaction sintering of UC (9) 220*e*.
Zorin, A. I. See Zverev, L. N.
Zorin, E. I. See Kruze, T. A.
Zoroofchi, J., and Butler, J. K. Refractive index of n-type GaAs (7) 186*a*.
Zotova, N. L. See Kriger, E. M.
Zozulya, P. V., and Yakovleva, L. A. Influence of ultrasonic dispersion on the polymorphism of dicalcium silicate (3) 89*b*.
Zschokke-Graenacher, I. See Waldmeyer, J.
Zubakov, S. M. See Perepelitsyn, V. A.
Zubakov, S. M., Demikhova, T. V., Yusupova, E. N., and Kairbaeva, Z. K. Service life of Cr-containing refractories in the slag zone of an induction furnace at the Kivtset plant (1) 19*h*.
Zubakov, S. M., Demikhova, T. V., Kairbaeva, Z. K., and Yusupova, E. N. Service of MgO-spinellide refractories in the melting chamber of O-suspended cyclone-electrothermal apparatus (9) 211*g*.
Zubakov, S. M., Sattarova, A. S., Dyukov, A. L., and Antonov, G. I. Periclase-spinel products from raw materials of different degrees of purity (3) 66*e*.
Zubarev, P. V. See Dement'ev, L. N.
Zubei, V. A. See Rashina, E. P.
Zubekhin, A. P. See Gaidzhurov, P. P.
Zuberi, Zaheer H., and Kopp, Otto C. Differential reaction analysis (DRA)—a technique for obtaining DTA data from inert substances (7) 176*b*.
Zubov, V. G., Borukhovich, A. S., Bazuev, G. V., and Matveenko, I. I. Magnetic phase transition in YVO_3 (1) 41*h*.
Zuca, Stefania, and Olteanu, M. Electrical conductivity of certain charge-unsymmetrical fused chloride systems KCl-$CaCl_2$, KCl-$SrCl_2$, KCl-$BaCl_2$ (3) 87*a*.
Zuev, B. I. See Shtefan, G. E.
Zussman, J. See Wicks, F. J.
Zuurendonk, T. J. See Mirani, H. V. M.
Zverev, L. N., Zorin, A. I., and Novikov, I. G. Testing the performance of a glassmelting furnace (1) 12*j*.
Zvoleiko, P. T., Get'man, E. I., Mokhosoev, M. V., and Bashkatov, A. Ya. Systems Rb_2MoO_4-Rb_2SO_4 and Cs_2MoO_4-Cs_2SO_4 (9) 241*e*.
Zvyagin, A. I., and Anders, A. G. Effect of magnetic dilution on the critical temp. of small-dimensional $CuWO_4$ antiferromagnetics (5) 125*f*.
Zwernemann, Ross High-voltage Schottky barrier device, P (1) 28*f*.
Zwickl, F. Selection of high-temp. steels and alloys for the enameling industry (7) 154*g*.
Zygmunt, A. See Murasik, A.
Zykov, A. M., and Samorukov, B. E. Behavior of group IV elements in GaP (5) 135*c*.
Zykova, L. K. See Pesina, N. M.
Zynio, S. A. See Vlasenko, N. A.
Zyukin, S. I. See Puz, V. V. .

SUBJECT INDEX TO CERAMIC ABSTRACTS FOR 1976

For cross references, see pages 351 and 352. The number in parentheses refers to the issue of *Ceramic Abstracts;* the number following is the page number. The letter B or P preceding the issue number indicates an abstract of (B) a book, bulletin, or separate publication or (P) a patent. The italic letter following the page number indicates position on the page. For more complete indexing of papers published in the *Journal of The American Ceramic Society* and the *American Ceramic Society Bulletin,* see indexes to the *Journal* and the *Bulletin.*

Abrasives, articles, molded, P (3) 49*e*.
belts, automatic joint processing machines for (5) 97*b*.
coated, device for supporting, P (1) 1*e*.
crystalline material, P (7) 149*g*.
cutting, of materials, P (9) 193*f*.
cutting device, P (1) 1*d*.
disk, P (3) 49*c*; P (5) 97*e*.
fine-crystal-size, P (7) 149*g*.
flow machining, to eliminate burrs and improve surfaces (5) 97*a*.
grain, performance, relation to exoelectron emission (1) 1*c*.
grains, strength (9) 193*e*.
grit, reclamation, P (1) 1*f*.
hard, BN for, P (1) 1*e*.
impact, of binary alkali silicate glasses (5) 135*e*.
materials, with coated grains for abrasive tools, P (1) 1*d*; coated, P (9) 193*g*.
multilayered, flexible, containing electroconductive layer, P (7) 149*h*.
P (7) 149*g*.
properties, of TiC and ZrC powders (1) 16*c*; of TiC powders (1) 16*d*.
sintered, containing oxides from CeO_2-Al_2O_3-ZrO_2 system, P (3) 49*e*.
grains, P (3) 49*e*.
Absorption, atomic, for analysis of cements and cement raw materials (5) 97*h*.
for analyzing substance, P (3) 81*e*.
to determine SiO_2 in ceramics (5) 131*e*.
Zeeman, of Pb, determination with dual chamber furnace (9) 224*a*.
center, induced in photochromic glass (9) 203*g*.
edge, of anodic oxide films on Bi (3) 72*h*.
in laser window CdTe (5) 106*f*.
of glass, U (5) 104*d*.
ir, in CdTe (1) 42*g*.
of Fe_2O_3-PbO-SiO_2 system (9) 229*e*.
microwave, low-temp., in natural and pyrolytic graphite (5) 141*a*.
optical, of CdS crystals (9) 236*a*.
of Cl^- ions in NaF single crystals (1) 42*h*.
of glassy semiconductors of Ge-Sb-Se system (1) 10*a*.
induced by neutron irradiation and heat treatment in ZnS crystals (1) 42*h*.
of Rh in borate and silicate glasses (5) 108*i*.
of single crystal of Gd Fe garnet (7) 182*f*.
properties, of U phosphate glasses (3) 60*a*.
of thin film materials, at 10.6μm (5) 104*e*.
Acids, acetic, dilute, interaction with Pb glazes (5) 123*b*.
fluosilicic, acidulation, of phosphate rock (1) 34*f*.
hydrolysate, of ethyl silicate, P (5) 134*g*.
monoclinic, Na, Ga-orthosilicate, crystal structure (9) 228*c*.
resistance, of mullite (1) 16*f*.
Acoustics, acoustoelectric domains, in ZnO, Brillouin scattering from (9) 216*i*.
apparatus, to purify nonore building materials (9) 206*d*.
damping, improved by filling insulating glass units with gas (1) 8*h*.
-electric, domains in CdS, optical transmission modulation and light scattering by (3) 90*e*.
properties, of oxide films, and use in acoustic surface wave devices (7) 170*i*.
Additives, doping, semiconductor using glass-ceramic dopant, P (1) 14*c*.
Adhesives, high-temp., P (9) 213*f*.
for refractory linings, in rotary kiln, testing service properties (5) 102*e*.
testing, apparatus for, P (3) 81*d*.
Adsorbents, microporous, diffusion coeff. in (3) 86*a*.
Adsorption, H_2O_2, on TiO_2 surface (7) 179*e*.
of methylene blue, on bentonite (3) 89*a*.
properties, of NiO, effect of Li ions (1) 37*j*.
rare earth element, on clay minerals (5) 144*b*.
of water, and N, by hardened slag-cement pastes (9) 195*d*.
Aggregates, alkali metal silicate, expanded, P (5) 121*h*.
for concretes, P (9) 197*i*.
diamond, polycrystalline, of predetermined shape, P (7) 167*i*.
drying, in fluidized bed (5) 97*g*.
Keramzit, treated with solutions of surfactants (9) 196*e*.

Aggregates *(continued)*
lightweight, artificial, from less bloatable shale (3) 63*f*.
fly ash for (7) 151*d*.
French, morphological and mechanical characteristics (5) 100*c*.
machine-plant slags as (9) 195*c*.
P (9) 197*c*.
size and distribution, effect on compressive strength (7) 151*h*.
upgrading industrial-economic parameters for (9) 197*e*.
waste glass as raw material for (7) 160*f*.
marginal, living with, B (9) 242*i*.
porous, artificial, from industrial tailings for concrete (9) 194*a*.
from perlites (9) 196*d*.
synthetic, and ceramics, technology, B (9) 244*f*.
properties, effect on properties of fresh concrete (5) 99*i*.
shungizit gravels (9) 196*d*.
silicate, and cellular plastics, composites (5) 98*d*.
synthetic, from impure bauxite, as roadstone, P (1) 4*c*.
ultralightweight, for concrete, from siliceous rocks (5) 102*h*.
Aging, thermal, of $Al_2O_3/Cr_2O_3/K_2O$ catalyst (9) 236*d*.
Agloporite, from acid clay material (5) 97*g*.
combustible, grinding in jaw crusher (9) 221*e*.
gravel, microcalorimetry and stability of phase composition (5) 142*d*.
quartz-glauconite rocks for (5) 102*i*.
sintering machine for, gas-dynamics parameters in (9) 225*h*.
from wastes, of heat and power plant ash and coal beneficiation (5) 101*h*.
Albite, synthetic, structural state (1) 46*e*.
Alite, crystal structure (3) 85*j*.
Alkaline earths, effect, on glass crystallization (1) 7*d*.
halophosphate, luminscent, P (5) 134*j*.
ions, resonant charge exchange (5) 145*a*.
-La double sulfides, preparation and structures (7) 185*f*.
metal, chlorides, interaction with UCl_3 (9) 220*c*.
complexes, vibrational spectra (5) 111*d*.
silicates, spherical particles, surface characteristics (9) 237*e*.
metal aluminates, P (3) 78*e*.
metal sulfates, ir spectra and lattice vibrations (5) 140*b*.
niobates, single crystals, dielectric and optical properties (5) 137*i*.
oxides, effect on color of pigments (9) 215*c*.
Alkalis, analysis, using light reflected from grating of optical emission spectrometer (3) 79*c*.
chromates, molybdates, and tungstates, high-temp. calorimetry (7) 182*b*.
fluoride, liquid mixtures, enthalpies of mixing (7) 182*a*.
mixtures, enthalpies of mixing in (5) 139*d*.
metal, oxides, effect on color of pigments (9) 215*c*.
metals, complexes, vibrational spectra (5) 111*d*.
effect on composition and properties of Ga binary selenites (5) 138*a*.
in glass, determination by electron probe microanalysis (1) 6*g*.
hexaborides, electron fractography (5) 138*h*.
hydrated silicates, foamed articles from, P (3) 69*b*.
polytungstates (1) 35*c*.
silicate particles and fibers, P (1) 20*i*; silicate, granular hydrated, P (3) 83*c*.
sulfates, ir spectra and lattice vibrations (5) 140*b*.
tetrafluoroborates, vibrational spectra (5) 111*e*.
-silica reaction, and expansion mechanisms (9) 196*c*.
titanates, fibrous, P (7) 172*f*.
Allophane, -imogolite mixtures, electrokinetic behavior in alkaline media (9) 231*e*.
structural model (9) 240*b*.
Alloys, alloying, level, and growth conditions, effect on distribution coeff. (5) 137*g*.
amorphous, random network model for (1) 11*a*.
As-Se, solid and liquid, electronic properties (1) 7*i*.
Cr-Ni, coating with Cr oxide-containing layer, P (9) 219*f*.
for hangers, for use as tooling in enameling plant (7) 153*f*.
Fe-P, magnetization in, temp. dependence (5) 146*g*.
Ge-Si-B, hot-pressed, electrical properties (1) 25*d*.
of Ge-Sn-As system (5) 135*g*.
hard metal, sintering, P (9) 214*h*.

Alloys *(continued)*
Invar, Moessbauer effect and magnetic structure (5) 142*h*.
unidirectional anisotropy in (5) 146*j*.
light metal, enamels on, corrosive undermining in Sb(III) chloride (1) 4*e*.
and metals, interfacial phenomena in, B (7) 190*i*.
Mg, and fiber materials, P (3) 69*j*.
$MoSe_2$-$TaSe_2$($Mo_{1-x}Ta_xSe_2$), electrical conductivity (1) 26*f*.
Na + Pb, Na activity in, measurement by use of beta-Al_2O_3 (3) 89*d*.
Nb-Al-Ge, superconductivity, effect of hydrostatic pressure and residual strain (1) 37*c*.
Pb-In, thin oxide films on, Auger analysis (9) 227*a*.
Pt-Rh 90-10, corrosion in glass melts (7) 155*c*.
Si-Ge, bonding to graphite, Al for, P (5) 126*g*.
solid-solution, ceramic, creep behavior (3) 85*f*.
super-, coated, thermal fatigue (5) 103*e*.
TiC-Fe, abrasion-resistant self-lubricating, P (3) 69*a*.
TiN, P (9) 214*j*.
of transition metals, origin of ferromagnetism and antiferromagnetism in (1) 42*j*.
U-Gd-Sn, thermodynamics of nitride formation in (5) 146*e*.
6061 Al, continuous-filament-reinforced, transverse strength (3) 54*c*.
Aluminates, mixed, as laser materials (1) 26*h*.
Aluminosilicates, amorphous, homogeneity in, microprobe study (7) 184*c*.
coatings, porosity, dependence on firing conditions (7) 173*c*.
granules, expanded, P (3) 54*c*.
heating, in dc electric field (3) 88*e*.
hydrates, for zeolites A and X, properties (7) 185*c*.
natural, reaction with $CsNO_3$ and $RbNO_3$ (1) 44*i*.
Aluminum, arsenide, -GaAs, single crystal multilayer (9) 217*j*.
atoms, distribution in crystalline structure of high-Al_2O_3 hypersthene (3) 86*c*.
for bonding, Si-Ge alloys to graphite, P (5) 126*g*.
borate, and Al borosilicate articles, P (9) 212*b*.
borohydride, complex derivatives, with O-containing ligands, NMR (1) 42*f*.
concentration, effect on coupling in $Ga_{1-x}Al_xAs$ double-heterostructure lasers (3) 56*j*.
enamel frits for (9) 198*g*.
fluoride, thin films, Rutherford scattering and (alpha,X) reactions in (1) 45*j*.
gel, effect on heat resistance of mortars (1) 2*j*.
hydrates, and basic sulfates, P (1) 34*e*.
hydroxide, mixed with Fe hydroxide, stability on montmorillonite (3) 92*a*.
-based materials, sintering and paramagnetic properties (5) 120*c*.
interaction, with MgO refractories (9) 210*i*.
ions, coordination in aluminosilicate glasses, effect of H_2O (9) 201*d*.
kitchenware, enamels for, P (1) 5*e*.
molten, demountable assembly for filtering, P (7) 167*g*.
mono-, phosphate, reaction with Al_2O_3 and MgO (1) 19*g*.
nitride, films, preparation and properties (1) 27*a*.
high-density bodies (5) 126*d*.
high-temp. conductivity (7) 182*b*.
luminescence (5) 141*a*.
single-crystal growth, P (5) 126*g*.
phosphate, coating substrates using composition forming, P (3) 54*b*.
domain structure and diffuse scattering in, electron microscopy (9) 231*h*.
halogen-containing, P (5) 121*j*.
soluble solid, P (3) 70*c*.
powder, nitridation (5) 142*f*.
and volcanic ash, sintered materials from (7) 186*a*.
silicate, particles, with layer of rare earth oxide, P (5) 97*e*.
single crystals, Kikuchi reflection patterns (9) 234*a*.
surface segregation, in MgO crystals (7) 187*b*.
titanate, ceramic bodies based on (9) 208*d*.
trichloride, and MgO, P (7) 178*f*.
^{27}Al, Knight shift (5) 141*g*.
quadrupole interactions in glass (9) 199*f*.
Aluminum oxide, activated, P (9) 226*a*.
active, in bead and powder form, P (9) 226*e*.
alpha, from Al sulfates, sintering (7) 186*c*.

Aluminum oxide alpha *(continued)*
high-temp. defect structure (1) 26*f*; high-temp. defect structure (3) 88*h*.
monohydrate, P (7) 178*e*.
P (1) 34*e*; P (5) 134*g*.
polycrystal, grain orientation in (3) 88*a*.
with specific surface area of 40 m^2/g, P (9) 226*a*.
amorphous, elasticity and density (3) 56*j*.
analysis, by X-ray fluorescence spectrometry (1) 31*i*.
anodic films, lattice phonon spectra (3) 74*b*.
-based, spherical grains, agglomerated, P (9) 226*f*.
-based materials, sintering and paramagnetic properties (5) 120*c*.
beta, articles, P (1) 28*a*.
and beta'', electrical conductivity (9) 233*e*.
ceramic, P (1) 28*a*; ceramic tube, P (7) 167*c*.
ceramics, P (1) 34*h*.
conductivity, effect of water (9) 230*f*.
flux growth of Ga analog (5) 139*f*.
low-temp. synthetic studies (7) 183*e*.
P (9) 220*i*.
polycrystalline ceramics, P (1) 28*b*; polycrystalline, high-temp. deformation (1) 40*b*.
with preferred orientation of grains (5) 144*a*.
sintering, inhibition by V_2O_5 (7) 183*b*.
slip casting, for alkali probes in molten metals (5) 126*h*.
use in measuring Na activity in Na + Pb alloys (3) 89*d*.
bodies, containing metal or metal carbide or nitride, P (7) 166*j*.
high-strength active, P (7) 167*c*.
high-surface-area, P (7) 167*c*.
structure, relation to softening behavior (5) 119*j*.
-calcia coatings, deposition and properties (3) 54*i*.
calcining, P (1) 34*f*.
and $Ca(OH)_2$ mixture, hydrothermal treatment (5) 140*i*.
as catalyst carriers (9) 236*b*. P (5) 121*a*.
ceramics, degree of mixing by XMA in (5) 139*h*.
sintered, compressive strength (9) 229*a*.
treated in molten K_2SO_4, physical and chemical properties (7) 185*a*.
chemical vapor deposition, mass spectrometric analyses of vapor in (3) 89*c*.
coating, of cemented carbide cutting tools (5) 116*f*.
coatings, with 2 wt% MgO, reaction with BeO substrate (7) 174*b*.
Co-doped, thermodynamics of Co precipitation in (1) 47*d*.
corrosion, by molten V_2O_5 (5) 116*h*.
cryolite-, melts, anodic effect during electrolysis (9) 226*i*.
CuO-Fe_2O_3 coating on, X-ray microanalysis (1) 27*h*.
cyclone calcination (5) 133*h*.
disks, determination of thermal diffusivity, capacity, and conductivity (1) 32*a*.
dispersions, P (5) 134*g*.
dissolution, rate in molten Fe_2O_3 (1) 44*g*.
effect, effect on electrical conductivity of TiO_2 (9) 229*i*.
on electrical conductivity of silicate glasses (5) 105*e*.
on hydration and hardening of slag glasses (3) 53*d*.
on oxidation of hot-pressed SiC (1) 37*g*.
elastic properties, effects of inhomogeneous porosity (1) 38*c*.
electrical conductivity (7) 187*a*.
electrical properties, and mechanical properties (5) 140*e*.
electrodeposited Ni-, oxidation (1) 26*j*.
ethyl silicate-bonded, effect of H_2O vapor on gel formation in (1) 17*g*.
extraction, from Egyptian nepheline syenite (7) 178*e*.
from grain size fractions of self-disintegration dust (7) 151*c*.
from nepheline, by acid solution (7) 178*c*.
from self-disintegrating clinker, effect of time and mixing rate (7) 151*d*.
extruding, P (3) 79*f*.
feeder, for electrolytic cells, P (1) 27*i*.
films, very thin, negative resistance and bistable switching in (3) 74*h*.
finely divided, by vapor-phase reaction between $AlBr_3$ and O (1) 44*f*.
fracture stress, variation with flaw character (5) 121*h*.
fracture toughness (3) 88*i*.
gamma-, coating on refractory article, P (7) 167*i*.
grain size, relation to fracture energy, cause of discrepancy in (3) 84*h*.
hardness, and machinability, effects of surface-active environments (1) 39*i*.
high-, compositions, and sintered articles from, P (5) 127*c*.
monoliths, phosphate-bonded (3) 64*d*.
high-density, bioglass-coated for implant materials (1) 22*f*.
Pb-free glazes for, P (5) 124*a*.
high-porosity, high-surface-area, low-bulk-density, P (1) 34*h*.
hot-pressed, fracture stress vs flaw size curves (7) 179*e*.
hydrated, thermal properties (1) 47*i*.
layers, nucleation on cemented carbide tools (7) 165*e*.
preparation during reduction by C in vacuum (5) 135*i*.
of medium specific surface, P (3) 83*j*.
and MgO, mixed oxide, P (1) 24*e*.
MgO-doped, grain-boundary segregation in (9) 232*f*.
mixtures, with quartz and aluminosilicates, sintering and mullitization (5) 145*e*.
Mn in, divalent, EPR (1) 38*a*.
monohydrate, alpha, P (3) 83*i*.
from basic Al nitrates, P (5) 135*a*.
Nb joined to, with Ni-Ti eutectic seal, P (1) 29*b*.
nonparticulate, transparent activated, P (7) 163*d*.
from ores, P (9) 226*f*.

Aluminum oxide *(continued)*
ores containing, treatment before alkaline extraction of Al_2O_3, P (1) 35*a*.
particles, spheroidal, P (7) 168*j*.
particle size, effect on properties of high-voltage porcelain (1) 23*c*.
Pb removal from, effect of temp. (3) 82*e*.
pellets, P (7) 178*e*.
phosphate-bonded, reinforced with metal filaments, fracture toughness (5) 103*g*.
polycrystalline, attack by melts containing V (5) 115*h*.
chemically polished, P (5) 111*f*.
dislocations in, etching method of revealing (5) 131*i*.
fracture strength, dependence on strain rate in (9) 229*a*.
porous, compression of capillary liquid in (5) 136*e*.
powders, effect of ball milling (9) 221*b*.
explosive compaction, structural changes during (9) 239*j*.
properties, and uses, review (1) 27*b*.
pure, from Al_2O_3 and SiO_2-containing raw materials by leaching, P (9) 226*g*.
and doped, single crystals, dielectric properties (1) 36*i*.
purification, P (7) 178*f*.
Raman freq., effects of uniaxial stress (7) 181*b*.
reaction, with $Al(H_2PO_4)_3$ (1) 19*g*.
with Li metaphosphate (1) 44*j*.
with Si in N atm (9) 238*i*.
with SiO_2 (1) 27*e*.
with Si_3N_4, comment and reply (3) 85*c*.
with soda (5) 144*f*.
recovery, from bauxite residues (3) 83*b*.
from retorted oil shale, P (7) 178*f*.
scribing, optimization of pulsed CO_2 laser parameters for (3) 74*j*.
single crystals, Hall effect and magnetoresistance (3) 73*c*.
sinterability, effect of $NH_4AlO(OH)HCO_3$ synthetic conditions (9) 230*h*.
sintered, additive and impurity distributions at grain boundaries in (3) 84*c*.
corundum ceramics from (5) 118*a*.
-Si_3N_4, thermal decomposition (3) 93*a*.
slips, and castings, effect of raw materials on properties (1) 17*d*.
solubility, in wustite (3) 91*j*.
spheres, P (3) 83*j*.
spherical particles, compacts, initial sintering kinetics (1) 40*b*.
by plasma flame (1) 44*i*.
spiral, made with removable mandrel (1) 29*i*.
substrates, surface texture formation in (1) 27*a*.
suspensions, paraffin stabilized, properties (1) 17*g*.
thermally shocked, crack healing and strengthening (7) 180*g*.
transition, doped, electrical conductivity (1) 25*c*.
translucent, containing MgO, Y_2O_3, and La oxide, P (1) 29*a*.
transparent, elements, P (9) 206*i*.
P (1) 24*i*.
trihydrate, precipitation from Bayer pregnant liquors, P (1) 34*j*.
vapor-phase-decomposed, initial-stage sintering (1) 45*b*.
whiskers, P (7) 167*a*.
Alunite, in ceramic raw materials (7) 166*c*.
Amethyst, crystals, P (5) 126*h*.
Ammonium, halide, crystals, vapor-phase growth and electrical conductivity (7) 188*h*.
ions, for cation exchange of $[Co(NH_3)_6]^{3+}$ from H-Co-$(NH_3)_6$-vermiculite (7) 179*e*.
$NH_4AlO(OH)HCO_3$, synthesis (9) 240*i*.
$(NH_4)_2Cd_2(SO_4)_3$, Brillouin scattering in (5) 135*d*.
sulfate, conversion to gypsum and monoammonium phosphate (7) 150*j*; conversion, for Ca sulfate, by lime hydrate (9) 225*h*.
crystallization kinetics (1) 36*c*.
Amphiboles, synthetic, chemical stability (3) 85*a*.
Analysis, mathematical, of random samples, technological experiments by (1) 32*j*.
micro-, nuclear-reaction, to study Si_3N_4 films (9) 233*g*.
rapid, as means for increasing output per man-hour of analytical chemists (9) 223*j*.
Analyzers, gas, in tunnel kilns (1) 33*d*.
image, automatic, for stereological determination of clinker fabric (3) 51*e*.
for liquid-suspended particles, P (1) 33*j*.
particle size distribution, for dusts, P (3) 81*f*.
SO_2, in-stack, using hollow cathode lamps (1) 32*h*.
Anatase, powders, crystal growth in, effect of atm and electric fields (3) 84*a*.
Andalusite, disproportionation, into Al_2O_3 and SiO_2 (9) 229*d*.
high-temp. phase (9) 235*d*.
Andradite, stability, at atm pressure (9) 239*f*.
Anhydrite, conversion, into gypsum, P (1) 34*j*.
crystal structure, refinement (3) 84*f*.
high-temp. (3) 51*i*.
morphology, chemical and mineralogical compositions (9) 227*b*.
phase transformation, high-pressure (1) 40*b*.
Anisotropy, effect, on antiferromagnetism in $YFeO_3$ (9) 230*f*.
of ferrites, Li and Ni (9) 226*h*.
fracture-strength, of sapphire (3) 88*g*.
of magneto-optical effects, linear, in $TmFeO_3$ (9) 226*f*.
of Poisson's ratio, of tetragonal crystals of $CaWO_4$ (5) 135*h*.
in SiO_2, vitreous (7) 160*g*.
unidirectional, in Invar alloys (5) 146*j*.
of YIG (9) 226*h*.
Anodes, Li, review (9) 232*h*.

Anorthite, crystallization, along join $CaAl_2Si_2O_8$-SiO_2 (5) 135*i*.
as glass raw material (1) 5*a*.
Anorthosite, ceramic raw material (7) 168*d*.
Anthophyllite, Fe^{2+}-Mg order-disorder in, kinetics (1) 41*e*.
Antimony, interaction, with Cu in Ge-based solid solutions (3) 89*f*.
orthoniobate (1) 35*j*.
Sb^{3+}, nephelauxetic effect in oxide glasses (1) 6*i*.
in siliceous rock, estimation (9) 223*f*.
tritelluride, crystals, lattice defects in (1) 41*j*.
Apatite, hydroxy-, formation at low supersaturation (7) 178*g*.
hydrothermal flux growth (1) 40*d*.
as mineralizer, in sanitary porcelain bodies (3) 70*h*.
silicate-, nitrogenated, crystal chemistry (9) 227*h*.
Archeology, Bronze Age, ceramics from ancient cargo ships (5) 97*g*.
in Bulgaria, objects from late Roman period (3) 50*c*.
faience bangles, 4000-years old, from Punjab (3) 49*e*.
glass, Phoenician bowl from Nimrud (3) 50*a*.
pottery, examination by SEM (9) 193*d*.
pre-ceramics (9) 193*h*.
Architecture, and construction, dictionary, B (3) 94*e*.
of Crystal Palace, in London, with steel framing and sheet glass (3) 49*g*.
Roman brickwork, polychrome (3) 50*b*.
Argon, diffusion, in glasses and vitreous SiO_2 (7) 158*g*.
-O process, at Armco Baltimore (1) 17*b*.
Armor, P (9) 212*c*.
plate, multilayered, P (3) 70*b*.
Arrhenius plots, for oxide samples, and theory of defect equilibrium (3) 84*i*.
Arsenic, AsSel, and $AsSel_{0.1}$, evaporation, condensates formed during (9) 232*h*.
concentration profile, implanted, in SiO_2 layers (1) 40*e*.
implanted in Si, electrical activation, effect of quenching (1) 40*i*.
selenide, As_2Se_2Te, As_2SeTe_2, and As_2Te_3 films, electron diffraction rdf analysis (1) 25*e*.
conduction type in, determination by depolarization measurements (3) 85*j*.
electrical and optical properties (9) 229*i*.
in Si, concentration effect of distribution (1) 36*e*.
in siliceous rock, estimation (9) 223*f*.
sulfide, reciprocity failure of photoinduced edge shirt in (3) 91*h*.
triselenide, Ag and Au diffusion in (1) 36*i*.
glassy, Ag transport under influence of electric field in (3) 93*f*.
thermal analysis (1) 12*j*.
Art and artware, authenticity, checked by thermoluminescence (9) 193*g*.
authenticity in, scientific detection of forgery, B (3) 93*e*.
beads, from raku-fired Egyptian paste (9) 193*j*.
Chinese, glazed ceramics, Moessbauer spectroscopy (9) 193*f*.
dating, by thermoluminescence (9) 193*i*.
decoration, painting with ceramic glazes (9) 193*g*.
fiber glass, and clay (9) 193*d*.
glass, bells (9) 202*c*.
collection of Coburg Castle (5) 97*c*.
cut, diamond profile grinding wheels on (5) 97*b*.
drinking, design of Adolf Loos (3) 49*g*.
Finnish industry from 1681 to 1850's (3) 49*j*.
industry and artist (3) 49*h*.
Koefoed goblet (3) 49*i*.
medallions in Oxford (3) 49*f*.
Roman, in Murano museum (3) 50*b*.
stained, red medieval, study by microscopy (1) 1*f*; stained, from old French churches, corrosion (1) 1*j*.
Venetian and Murano, chronology from 1401 to 1407 (1) 1*j*; Venetian, enameled on opaque-white ground, Lattimo (3) 49*j*; Venetian and Murano, from 1408 to 1443 (5) 97*i*.
wig, in Denmark museum (3) 49*g*.
-making terms of 16th century, Bortolussi's book (9) 193*j*.
Greek, "Etruscan" pottery, Moessbauer spectroscopy (9) 193*f*.
in Japan, folk customs related to production, coloring (3) 49*b*.
Japanese, and ceramic traditions (9) 193*e*.
forming roofing tile and stools (1) 1*c*.
majolica, or faience, explanation (5) 97*c*.
Mexican, history, cultural and mineralogic sherd analysis (5) 97*d*.
Persian (9) 193*h*.
Pompeian, amphoras, drinking vessels, and lamps, exhibition (5) 97*g*.
porcelain, and faience, history (3) 49*i*.
jeweled (7) 149*c*.
pottery, defense of tradition (3) 49*h*.
Rumania folk (9) 193*b*.
sculpture, coiled (7) 149*j*.
for potter, B (3) 96*i*.
Wedgwood, history, B (3) 96*h*.
Artists, Barovier, Iacobo, family (7) 149*b*.
Berlin potters (5) 97*h*.
Cardew, Michael, African pottery (7) 149*e*.
Drahanchuk, Ed, architectural ceramics (9) 193*b*.
Horvath, Marton, Gold Medal winner for glass bead jewelry (3) 49*i*.
Krause, Erich, potter in stoneware (1) 1*b*.
Loos, Adolf, and glass design (3) 49*g*.
Popp, Walter, potter (5) 97*f*.
potters, Bethel Pike (7) 149*j*.

Artists potters *(continued)*
Japanese, in America (7) 149*c*.
Real de Nieto, Rosa, Mexican potter (9) 193*i*.
Schwarcz, June, enamelist (7) 149*c*.
Asbestos, chrysotile, converting, P (3) 83*a*.
industry, pollution control in, B (3) 95*b*.
Ash, durability, relation to ir reflection spectrum in PbO-SiO_2 frit (1) 45*d*.
fly, of heat and electric power plants, glass ceramics from (9) 200*c*.
for lightweight aggregates (7) 151*d*.
fuel, pulverized, pozzolanic activity (9) 195*j*.
from power plants, for agloporite gravel (9) 195*h*; for agloporite gravel (9) 196*b*.
slag wastes, as aluminate additive in clinker (5)98*a*.
thermal electric power plant, to optimize cement composition (3) 53*g*.
volcanic, and Al powder, sintered materials from (7) 186*a*.
volcanic, Shirasu, use in crystallized glasses (9) 199*f*.
Atmosphere, effect, on crystal growth of anatase powders (3) 84*a*.
on electric resistance of C powders (3) 73*f*.
on high-temp. strength of magnesiochromite refractories (3) 64*h*.
on resistivity of WO_3 ceramics (9) 230*g*.
Attapulgite, Korvi, mineralogy (1) 34*i*.

Barium, aluminate, setting in presence of gypsum (3) 53*j*.
$BaAl_2O_4$, crystals, growth in Bi germanate glasses (3) 57*j*.
$BaCrO_{2.90}$, hexagonal, with 5-layer stacking sequence (1) 39*h*.
$Ba(Cr_{0.50}Nb_{0.50})O_3$, formation (1) 39*f*.
$BaFe_{12}O_{19}$, chemical heterogeneity and crystal growth (1) 35*j*.
$BaFe_2O_4$, polymorphism (3) 90*f*.
$BaGeO_3$, X-ray, dielectric, and resistivity studies (3) 75*i*.
$BaNb_2O_6$, solid-phase reaction (5) 145*j*.
$BaTi_5O_{11}$, preparation by solid-state reaction (1) 27*a*.
$Ba_xSr_{1-x}TiO_3$, single crystals, diffused phase transitions in (9) 229*h*.
$Ba_2Bi_4Ti_5O_{18}$, lattice images of dislocations in (9) 234*h*.
$Ba_2Ge_2TiO_8$, ferroelastic behavior (9) 232*b*.
Ba_2MoO_5, and Ba_3MoO_8, synthesis (1) 46*i*.
$Ba_2NaNb_5O_{15}$, crystals, stimulated emission from Nd^{3+} ions in (1) 45*h*.
$Ba_2Na_{1-x}Li_xNb_5O_{15}$, crystal growth and ferroelectric properties (1) 36*i*.
$Ba_2Ti_9O_{20}$, hot-pressing (5) 124*i*.
as microwave dielectric resonator (1) 24*d*.
$Ba_2VSi_2O_8$, and $BaVSi_2O_7$, electronically conducting (7) 156*f*.
$Ba_3Al_2O_6$, and $BaAl_{12}O_{19}$, vaporization, mass spectrometry (5) 141*h*.
carbonate, effect in fine ceramic bodies (5) 123*h*.
reactivity with TiO_2 ultrafine powders (9) 238*b*.
hexaferrite, densification, effect of composition and heterogeneity (1) 26*i*.
wet milling effect (9) 217*j*.
wetting by molten metals (9) 218*j*.
iodate, crystals, dissolution and growth (1) 37*c*.
melt, resistance of refractory materials to (5) 120*b*.
molybdate, crystal growth (1) 36*h*.
orthotitanate, differential reaction rate in $BaTiO_3$ powder (3) 72*j*.
oxide, porous multicrystalline, audiofrequency dielectric absorption in (5) 124*e*.
and rare earth oxides, physicochemical properties of compounds from (3) 90*e*.
-Pb-Bi oxides, superconductive, P (5) 128*f*.
silicate, $CaSiO_3$, and $BaSiO_3$, crystal chemistry and solid solutions (5) 136*c*.
sulfate, effect on formation of portland cement clinker (1) 2*b*; effect on structural transformation in C_2S (3) 86*f*.
titanate, + 5% Pb, free charge carriers over surface (5) 126*c*.
base ceramic composition, P (3) 76*b*.
ceramic dielectric element, P (3) 76*b*; ceramic material, P (5) 126*i*.
ceramics, properties, effects of aging and compressive stress (1) 25*i*; ceramics, treatment, P (1) 29*b*; ceramics for high voltage capacitor use (9) 217*f*.
densification and strength, effect of LiF and MgO (5) 125*a*.
dielectric properties (7) 170*d*.
electromechanical properties (9) 217*c*.
fine-grained, synthesis (1) 46*j*.
formation from $BaCO_3$ and TiO_2, effect of LiF (5) 138*f*.
high voltage photovoltaic effect in (7) 171*c*.
n-doped, Pd and Pt into (7) 171*d*.
optical properties (5) 143*e*.
P (1) 29*d*.
semiconducting thick films, positive temp. coeff. of resistivity in (3) 74*c*; semiconducting film, with PTCR (7) 172*a*.
single crystals, thickness of 90° ferroelectric domain walls in (9) 241*g*.
sinterability, effect of additions (7) 170*e*.
slip casting (1) 23*g*.
strength, effect of internal stress (3) 86*j*.
wet synthesis (7) 189*a*.
titanyl oxalate, decomposition, and assessment of $BaTiO_3$ (7) 180*j*.
in TV tube glass, determination by atomic absorption spectrometry (7) 155*h*.

Barium *(continued)*
vanadate, preparation and properties (7) 181*h*.
waste compounds, use in high-strength cements (7) 153*g*.
zirconate, synthesis and properties (7) 186*c*.
Batteries, Mg, effect of heatup (1) 25*h*.
nuclear, miniaturized, P (5) 129*g*.
solid state, containing Ag sulfonium iodide electrolyte (9) 239*h*.
storage, Na-S, P (9) 220*c*.
vent, porous ceramic, P (7) 173*e*.
Bauxite, activation, P (7) 178*d*.
from Alabama (5) 133*e*.
analysis (9) 223*c*.
extraction, chemistry (9) 227*b*.
fluorescent X-ray spectrometry (5) 131*j*.
mineralogy, and genesis, from India (3) 90*a*.
processing, P (7) 179*a*.
purification, by gas-solid reactions (3) 82*a*; by gas-solid reactions, thermodynamics (3) 83*f*.
residues, recovery of V, Cr, and Al_2O_3 from (3) 83*b*.
treatment, P (7) 179*c*.
Bearings, material, fiber-reinforced, P (5) 121*h*.
Beneficiation, of bauxite, by gas-solid reactions (3) 82*a*.
of clays, Alabama (5) 133*b*.
method and apparatus, P (5) 134*j*.
semirefractory kaolin (5) 133*c*.
of graphite, low grade, by flotation (9) 225*c*.
of Ni, Cu, or Co oxide ore, segregation process for, P (3) 83*b*.
of quartz rocks, for crystals (3) 82*d*.
of refractory fireclays (3) 82*e*.
of vermiculite, in electric field (9) 225*c*.
of zircon, concentrate, low grade (9) 225*d*.
Bentonite, activation, P (3) 83*i*.
glass from (5) 106*g*.
Indian, X-ray and DTA (1) 48*a*.
in kaolin bodies (1) 20*b*.
methylene blue on, improvement of adsorbability (3) 89*a*.
suspension, highly viscous, P (3) 79*g*.
Beryllium, destruction (3) 85*j*.
fluoride, enthalpy, by transposed-temp. drop calorimetry (7) 182*a*.
Hall effect in, effect of magnetic breakdown (1) 37*e*.
oxide, ceramics for MHD generator insulating walls (3) 72*b*.
hydrothermal solubility in NaOH solutions (1) 40*d*.
multilayer metalized ceramics, P (5) 127*i*.
substrate, reaction with Al_2O_3-2 wt% MgO protective coatings (7) 174*b*.
thermal conductivity, effect of additives (3) 86*e*.
Binders, Al-Cr phosphate, in foundry work (3) 63*h*.
alkali metal silicate, aqueous, P (3) 69*a*.
Al phosphate, complex, P (3) 69*i*.
blast furnace slag, P (5) 102*e*.
compositions, P (5) 121*b*; P (7) 167*d*.
Cr-Al phosphate, aluminosilicate bodies in (3) 63*g*.
ethyl silicate, P (3) 69*i*.
glass, P (5) 111*e*.
hydration hardening, theory (5) 102*f*.
hydrophobic additive in, from petroleum wastes (5) 118*c*.
molding sand, P (5) 122*e*.
phosphate, refractory (7) 165*h*.
silicic acid, P (3) 70*a*.
slag-silicate, reaction with silty and clayey additives (9) 196*i*.
Binding, properties, forecasting principles (3) 91*c*.
of system PbO-CrO_3-H_2O (5) 98*c*.
Bismuth, anodic oxide films on, absorption edge and energy gap (3) 72*h*.
$BiSbO_4$, single crystals, vapor growth (7) 188*f*.
$Bi_{12}GeO_{20}$, gamma-Bi_2O_3, and BiOCl, vapor growth (1) 47*j*.
single crystals, chemical etching of ridge waveguides on (9) 227*a*.
$Bi_{12}PbO_{19}$, piezoelectric thin films (9) 237*f*.
$Bi_{12}SiO_{20}$, electron effective mass and conduction-band effective density of states in (9) 231*f*.
$Bi_2O_3.3MoO_2$, and $Bi_2O_3.2MoO_3$, crystal growth (1) 36*h*.
Bi^{3+}, nephelauxetic effect in oxide glasses (1) 6*i*.
$Bi_4Ge_3O_{12}$, luminescence, spectral and decay properties (7) 183*f*.
in CdS, ion-implanted, radiation-enhanced diffusion (5) 126*f*.
optical properties, in germanate, borax, and phosphate glasses (1) 10*c*.
orthotantalate, crystallizaton (9) 228*f*.
oxide, films, space charge limited currents in (3) 75*e*.
powder compacts, initial sintering (5) 140*c*.
in siliceous rock, estimation (9) 223*f*.
titanate, ferroelectric, domain switching in (9) 233*b*.
Bodies, ceramic, acid resistance (1) 22*d*.
black, P (3) 72*d*.
for chemical apparatus (5) 123*g*.
deformation in, growth (9) 215*g*.
fine, effect of $BaCO_3$ (5) 123*h*.
metallic coated leads to, anchoring, P (5) 126*h*.
with nepheline concentrate, phase composition (9) 215*i*.
from particulate material, P (5) 127*j*.
porosity, relation to elastic modulus and impact strength (1) 23*e*.
pressing, effect of solid, liquid, and gaseous phases during (7) 169*h*.
quartz in, review and discussion (3) 72*c*.
raw material, more or fewer components (5) 123*i*.
shock resistance, thermal, effect of firing cycle (9) 230*h*.
wollastonite in (1) 23*h*.
Boehmite, colloidal fibrous, from active Al_2O_3, P (1) 34*f*.

Bonding, article, to substrate, P (7) 173*c*.
carbonaceous materials, to metal bodies, P (1) 21*a*.
ceramics, with metal, P (1) 28*i*.
chrome-magnesite, refractories, effect of Fe oxide (9) 209*g*.
coarse grain, of corundum materials (5) 116*e*.
glass, ceramic, and metal, low-expansion bonding glass composite for, P (9) 205*a*.
glass fibers, to rubber, P (1) 13*h*.
inorganic solids, P (1) 3*h*.
metal, to ceramic, P (3) 76*b*.
and ceramics, P (3) 76*d*.
to nonmetallic substrates, P (9) 219*f*.
Pd alloy for, P (5) 124*a*.
refractory, system, P (3) 70*f*.
Si-Ge alloys, to graphite, Al for, P (5) 126*g*.
solid state, of metal-ceramic laminates, fracture mechanics study (3) 73*b*.
Bone china, firing, intermittent (7) 169*i*.
history, and properties (7) 168*h*.
new, reaction process during firing (7) 169*h*.
Borates, alkali, energy relations and B coordination number in (7) 156*g*.
Boric acid, flotation, from Na_2SO_4, P (3) 83*b*.
Borides, boriding, composition, P (5) 126*j*.
coatings, reaction with Mo substrates (5) 119*b*.
hexa-, of rare earths, free B in (3) 79*j*.
refractory, cathode sputtering of and secondary ion emission from (3) 72*d*.
preparation in plasma stream (5) 119*a*.
sintered, P (1) 22*i*.
transition metal, reaction with BN (1) 45*a*.
Boron, carbide, articles, P (3) 69*b*.
sintering (1) 20*a*.
with V and Cr, physical properties (3) 66*g*.
concentration profile, implanted, in SiO_2 layers (1) 40*e*; implanted into Si (1) 40*i*.
in diamond, natural semiconducting, determination (9) 217*b*.
diffusion, into Si (1) 40*g*.
distribution, in thin diffusion layers of Si (5) 137*j*.
free, in hexaborides of rare earths (3) 79*j*.
in glass, determination, effect of alkalimetric titration of mannitoboric acid complex (9) 199*d*; determination by atomic absorption spectrophotometry (9) 199*j*.
K borophosphate, Raman spectroscopy (5) 110*a*.
in MgO clinker, distribution (1) 37*d*.
minerals, in glass batch (3) 55*d*.
nitride, "isotropic" and hot-pressed, thermal conductivity (7) 166*a*.
articles, P (1) 21*b*.
cubic, for very hard abrasives, P (1) 1*e*; cubic, P (1) 21*i*; cubic, high-pressure synthesis, catalysts for (3) 66*a*: cubic, catalyst systems for synthesis, P (3) 69*d*; cubic, abrasive compact, P (7) 166*j*; cubic, catalyst systems for, P (9) 212*e*; cubic crystal structure, synthesizing, P (9) 220*d*.
phase transformation at high temp. and pressure (7) 184*i*.
phosphiding products, luminescent properties (5) 141*b*.
polycrystalline cubic, P (3) 70*d*; polycrystalline cubic, P (9) 213*e*.
reactions with transition metals and borides and nitrides (1) 45*a*.
wurtzite-type, from graphite-type B, P (5) 122*d*.
oxide, effect on sintering MgO (7) 181*d*; effect on physicomechanical properties of corundum (9) 209*b*.
glassy, silver centers in (1) 45*j*.
vitreous, gas migration in (9) 220*b*.
phosphide, single-crystal, synthesis (1) 46*c*.
semiconductor, diffusion of impurities in (5) 137*h*.
in Si, behavior (5) 135*c*.
tribromide, reaction with elemental B (1) 44*h*.
^{11}B, quadrupole interactions in glass (9) 199*f*.
Brick, alveolar, elements, and thermal protection of buildings (7) 163*g*.
architecture (1) 15*d*.
building, with mating pegs and cavities, P (3) 63*c*.
P (1) 16*a*.
colored, manganiferous industrial wastes and by-products in (7) 163*g*.
compressive strength, relation to tensile strength (1) 15*g*.
deformation properties, in mixed structures together with concrete (7) 163*a*.
efflorescence, and remedies (7) 163*b*.
removal, P (5) 115*a*.
face, 3-lb (9) 207*b*.
facing, cleaning facades (5) 114*d*.
firing, energy-saving, with coal (3) 81*e*.
fly ash (1) 15*c*.
half, and ceramic "split" tiles facade claddings (7) 163*b*.
handmade, sand-coated clays for, P (5) 115*b*.
high-strength, in tunnel kiln (5) 115*d*.
laying, apparatus, P (1) 15*j*.
masonry, composite action on beams (5) 114*e*.
engineered computer program (5) 114*f*.
unreinforced, calculating restraining moments in (5) 114*j*.
mfg., and use, review (5) 115*g*.
molding, P (7) 163*j*.
moldings, P (7) 163*j*.
P (5) 115*a*.
packaging, from factory to building yard (5) 115*a*.
panels, by cassette method (3) 63*b*.
construction, P (3) 63*c*.
prefabricating, P (5) 115*a*.
using spacer slides (3) 63*h*.

Brick *(continued)*
perforated, from clays with combustible additives (9) 207*i*.
cross-sectional design, and behavior under stress (7) 163*h*.
and Poroton lightweight for walls (9) 206*e*.
planks, avoiding drying distortion (3) 62*e*.
purpose-designed, with specific qualities, by regulating sintering (7) 163*j*.
quality, improving with magnetic field on argillaceous raw materials (5) 114*f*.
physicochemical methods for improving (9) 207*h*.
quality control in (3) 79*a*.
from red mud, P (3) 63*b*.
sand-lime, hydrated lime powder for (3) 53*h*.
strength, increased by homogenization of sand (5) 100*i*.
shale-ash, through semidry pressing (9) 207*j*.
shapes, P (1) 16*a*.
shrinkwrapping (3) 79*a*.
silicate masses for, automation in composition control (9) 206*e*.
size, new (3) 63*e*.
stacking, P (1) 16*c*.
Staffordshire blue, from Etruria marl, P (7) 164*a*.
study, light optical and SEM (5) 114*f*.
suction rate test (5) 115*a*.
tile, cutting device for, P (9) 221*h*.
unloading, and packing from tunnel kiln cars (5) 115*h*.
used, removing mortar from, P (7) 163*i*.
wall, cantilever girders, near-full-size (5) 114*d*.
panels, laterally loaded (5) 114*e*; panels, prefabricated (5) 115*c*; panels, with door and window openings, apparatus for constructing, P (5) 115*j*.
State Standard for, review (9) 207*a*.
through-the-wall (1) 15*i*.
-work, with beam and span loading, flexural strength (9) 207*e*.
behavior in filled frames under racking load (5) 114*c*.
calculation (3) 62*i*.
corrosion of reinforcement in (5) 114*g*.
creep data for (5) 114*a*.
lateral load resistance (5) 114*i*.
load-bearing, dampproof courses for (5) 115*f*.
piers, effect of stress on creep in (5) 114*e*.
post-tensioned, in SCD system (5) 115*i*.
prefabricated construction (3) 63*a*; prefabricated (7) 163*e*.
prefabrication (1) 15*f*.
reinforced, thin arched roof decks (3) 63*a*; reinforced beams, limit state shear design (5) 114*j*.
strength and modulus of elasticity (5) 115*g*.
tensile strength (5) 115*g*.
unrestrained Fletton, expansion (3) 63*c*.
using Sarabond mortar, strength (5) 115*a*.
Brick industry, air pollution, Clean Air Technical Guide (1974) (3) 63*e*.
emission of gaseous fluoride compounds, current criteria for (3) 62*g*.
from kilns (3) 62*d*.
Almar, 220 tons daily (5) 114*a*.
Buckley (3) 62*g*.
colliery waste admixtures in (3) 63*b*.
cost saving in (1) 15*b*.
energy, test to save in firing (7) 177*f*.
energy consumption in (5) 115*c*.
energy-saving measures, in drying ovens and kilns (3) 62*i*.
fuel saving in (7) 177*a*.
Isenhour Co., automation for world's longest tunnel kiln (5) 114*b*.
Jaunjo SL, smooth system (5) 114*h*.
La Oruga SA, automated high core brick process (5) 114*h*.
London, increased capacity (9) 207*g*.
Kings Dyke Works (9) 207*e*.
Oklahoma (9) 207*g*.
plant efficiency, and new markets (3) 62*j*.
production control, quality, and industrial research (5) 114*c*.
uses of statistical methods (3) 62*f*.
Real, increases profit potential (9) 207*j*.
regulations, relating to heat and sound insulation (9) 206*j*.
small plants, near fuel markets vs large plants (9) 207*b*.
technology, trends and prospects in (9) 207*d*.
UK, plant of George Armitage & Sons (1) 15*e*.
Brickmaking equipment, automated layer, for ladle brick (5) 114*a*.
for blending, P (7) 163*i*.
cutting, clay blocks, P (5) 115*j*.
destacking, P (3) 63*d*.
for facing brick, unitary composite, P (9) 207*h*.
for forming packs, with voids, P (3) 63*e*.
gripper, for stack, P (7) 163*j*.
for handling, P (3) 63*c*.
laying, automated, P (9) 207*g*.
leveling system for, P (5) 115*a*.
loading, from drying wagons onto furnace (9) 206*f*.
mechanical, giving one surface appearance of hand-formed brick, P (9) 207*i*.
press, with cover plate for press mold, P (5) 115*b*.
for rough faced, P (7) 163*i*.
stacking, P (1) 31*c*.
and strapping, P (5) 115*j*.
Brittle materials, crack growth in, load-relaxation techniques to study (3) 84*g*.
and time-to-fracture (9) 238*g*.
double torsion specimens, crack front profiles in (3) 85*e*.
K_{IC} test for (7) 176*d*.
small, tensile test device for (5) 131*c*.

Brittle materials *(continued)*
strength, strain-rate-dependent effect of specimen vol on (1) 11*j*.
surface flaw density, statistical determination (9) 239*h*.
surfaces, strength degradation (1) 45*j*; strength degradation (7) 187*b*.
thermal shock resistance (7) 179*g*.
Bronze, Rb W, superconductivity in (7) 180*f*.
Building materials, blast-furnace slags in (9) 195*a*.
block, large, from loams (5) 114*i*.
masonry, P (1) 16*b*.
P (1) 15*j*.
sound insulating, P (9) 207*i*.
Ca silicate, P (1) 16*a*.
ceramics, as engineering load carrying structural materials, B (9) 243*g*.
composite elements, P (3) 63*d*.
fine-fraction, separation with acoustic classifier (9) 206*d*.
frost resistance, laboratory tests (9) 207*d*.
future, effect of energy cost (3) 81*d*.
from glass wastes (1) 10*i*.
inorganic, treated by coatings containing polymers, P (9) 197*b*.
inorganic foam, P (3) 63*e*.
lifting device for, P (1) 31*b*.
lightweight, expanded natural cereal grains for, P (1) 16*a*.
masonry, silicone-treated, spalling (1) 15*h*.
moisture content, determination with pneumatic gages (9) 223*i*.
nonore, purification with acoustic apparatus (9) 206*d*.
panels, enamel and combined coatings for corrosion protection (9) 198*c*.
masonry (9) 206*i*.
silicate, technical-economic tendencies of industry (1) 15*g*.
slag pumice as (9) 196*i*.
structural ceramics (1) 15*h*.
wear resistance (9) 223*h*.
Bulk modulus, of glass, calculation (1) 5*f*.
Burners, ATON, for oil combustion (7) 177*g*.
ceramic, for M & P hot stove system, repair (7) 177*e*.
P (1) 33*i*.
ceramic fiber matting, for furnaces, P (3) 69*e*.
combustion control (3) 81*i*.
compact, for dryers, P (1) 33*j*.
gas, for direct heating of tank furnaces (3) 81*d*.
P (1) 34*b*; P (7) 177*j*.
ignition system, P (7) 177*i*.
oil metering system, in tunnel kilns (7) 176*h*.
P (9) 224*h*.
producing gases, high-speed high energy, P (5) 133*i*.
radiant, and furnace for testing at high temp., P (9) 225*a*.

Cadmium, in atmospheric particles, microdetermination (3) 80*e*.
carbonate, reactions with kaolinite (7) 185*i*.
$CdCr_2Se_4$, anisotropy, effect of Co ions (1) 38*h*.
ferromagnetic semiconductor, thermomodulation spectra, band splitting in (9) 234*d*.
single crystals, photoconductivity (9) 237*c*.
$CdInGaS_4$, crystals, vibrational spectra by ir spectroscopy (1) 40*i*.
$Cd_2Os_2O_7$, semiconductor-metal transition in (7) 186*i*.
Cd_3As_2, electron mobility in (1) 38*a*.
-Ga-Te, compound films, switching effect in, and crystallization (1) 27*c*.
iodide, molten, surface tension (7) 187*d*.
polytypes, structural stability and growth (5) 144*h*.
oxide, crystals, (111) coincidence twist boundaries in (5) 142*j*.
single crystals, growth (1) 39*g*.
vaporization (5) 147*a*.
poisoning, pathology and action by health authorities (1) 48*c*.
release, from on-glaze colors (5) 124*c*.
selenide, films, recrystallization, kinetics (1) 41*h*.
p-, and p-CdS single crystals, preparation conditions (1) 35*e*; p-, single crystals, sensitizing centers in (5) 145*d*.
self-diffraction of laser beams by phase lattice in (1) 45*h*.
single-crystal layers, edge luminescence (5) 125*c*.
sulfide, and CdSe, mixed crystal layers from, P (3) 76*h*.
crystals, electron-hole plasma in, radiative recombination (9) 238*g*.
films, from aqueous solution of thiourea (3) 74*e*; films, vacuum deposition (3) 75*i*; films, Hall and field effect mobility (9) 217*f*.
optical transmission modulation and light scattering by acoustoelectric domains in (3) 90*e*; optical absorption (9) 236*a*.
radiation-enhanced diffusion of ion-implanted Bi in (5) 126*f*.
single crystals, electrical properties, effects of stress (5) 138*b*.
sintered layers, photocurrent relaxation time and impurities effect on recrystallization (1) 27*f*.
three-proton conductivity in, observation with mode-locked Nd:glass laser pulses (.
telluride, crystals, annealing stage of electron radiation damage in (3) 84*f*.
electron drift velocity in (3) 86*b*.
films, substructure, X-ray diffraction data (1) 48*b*; films on Ge, structure (5) 126*j*.
hot-pressed (Irtran 6), refractive index (5) 144*h*.
laser window, absorption edge in (5) 106*f*.

Cadmium telluride *(continued)*
microscopic defects and ir absorption in (1) 42*g*.
photovoltaic effect in (3) 72*j*.
pure and doped, precipitation in (5) 144*d*.
thermal properties (1) 12*d*; thermal pulse damage thresholds in (3) 59*e*.
$-Cd_xHg_{1-x}$ heterostructures (1) 35*g*.
Calcination, of TiO_2, anatase-rutile transformation (7) 179*h*.
Calcining, high-alkali raw material, mineralizing action of P slag during (1) 3*e*.
Calcite, deposits, in Argentina (3) 82*g*.
subsolidus, and melting relations for, and join $CaCO_3$-$MgCO_3$ (5) 145*f*.
Calcium, aluminate, dilatometric characteristics (9) 229*j*.
phase formation and hydration, effect of Fe and Si (3) 89*b*.
raw mixes, sintering, P (7) 153*c*.
reaction with gypsum, DTA (5) 101*j*.
by solid state reaction of $CaSO_4$-Al_2O_3 system and reactivity for SO_3 (3) 91*f*.
aluminate hydrates, thermal decomposition (3) 93*a*.
aluminosilicate, ceramics, as low-loss dielectrics (1) 35*b*.
antimonide-antimonates (9) 238*b*.
in atmospheric particles, microdetermination (3) 80*e*.
brownmillerite, reaction with water in presence and absence of $MgSO_4$ and hydrated lime (5) 101*j*.
$CaAl_2Si_2O_8$-SiO_2, anorthite crystallization along join (5) 135*i*.
$CaCO_3$-$MgCO_3$, subsolidus and melting relations for (5) 145*f*.
carbide, viscosity, effect of SiO_2 and Fe_2O_3 (1) 37*j*.
carbonate, by blowing CO_2 in mfg. of nitric phosphate (5) 99*e*.
crystal lattice, paramagnetic resonance of Fe^{2+} ions in (1) 43*e*.
properties, prepared by interfacial reaction (9) 237*g*.
purified, P (3) 83*g*.
in sediment samples (3) 80*i*.
CaV_2O_6, conductivity study (1) 36*f*.
CaY_2-$Mg_2Ge_3O_{12}$, optical spectra and laser action in (9) 236*f*.
$CaY_4(SiO_4)_3O$, physicochemical study (1) 43*g*.
Ca_2SiO_4, beta-, single crystals, X-ray study at high temp. (3) 93*j*.
gamma, beta, and alpha', ir and Raman spectroscopy (7) 182*j*.
$Ca_7MgSi_4O_{16}$, (phase T) in system Ca_2SiO_4-$Ca_3Mg(SiO_4)_2$, crystallography (5) 136*j*.
chlorapatite, axially nonsymmetric hole centers in (5) 135*b*.
di-, silicate, crystal aspect of polymorphic transformations in (9) 228*h*.
grinding, effect of aids (5) 99*d*.
hydration in nepheline slurries (1) 2*h*.
polymorphism, effect of ultrasonic dispersion (3) 89*b*.
production and stabilization, kinetics (9) 195*a*.
in dolomites, determination using Palladiazo as indicator (1) 33*d*.
fluoride, crystals, ESR center in (9) 235*b*.
dislocation velocity in, Nd effect (9) 230*d*.
from fluosilicates and by-product gypsum, P (3) 83*j*.
sintering, effect of particle size and adsorbed H_2O (3) 86*g*.
:Sm, optical charge transfer in (5) 143*a*.
gluconate, with $CaCl_2$ or glucose, effect on cement hydration (5) 100*j*.
hexaluminate, synthesis (5) 102*d*.
hydroxide, and Al_2O_3 mixtures, hydrothermal treatment (5) 140*i*.
saturation of pore solutions in hardened cements (5) 100*b*.
solid solubility in $Mg(OH)_2$ (1) 45*f*.
-langbeinite structure, stability (9) 239*e*.
manganite (3) 82*h*.
monoaluminate, kinetic studies of formation (1) 41*c*.
mroseite, crystal structure (3) 85*b*.
orthoborate (1) 34*e*.
orthophosphate, thermal synthesis (3) 80*i*.
oxide, effect on sintering behavior of ZrO_2 (3) 65*j*; effect on glaze microstructure (5) 123*j*; effect on sintering MgO (5) 137*a*.
interaction with volcanic glass in presence of Na compounds (9) 201*g*.
Pb removal from, effect of temp. (3) 82*e*.
semiconducting, magnetic and electrical properties (5) 110*b*.
phosphate, amorphous (9) 194*a*.
silicate, grafting organic groups on, P (3) 54*d*.
hardened in presence of electrolytes, structure (5) 101*i*.
hydrate, for tobermorite slurry and molded products (1) 2*a*; hydrate, for industrial use, xonotlite (7) 164*c*.
hydrates, thermal transformation (3) 53*e*; hydrates, pore structure determination (5) 101*b*; and hydrates, structural chemistry (5) 101*g*; hydrates, spectroscopy of silicate ions in (5) 145*a*; hydrates, volumetric concentration, effect on asbestos-cement sheets (9) 194*g*; hydrates, silicate anions in, spectroscopy (9) 239*c*.
hydrous, insulation products, P (1) 14*f*.
organic derivatives, grafting, P (5) 102*e*.
$SrSiO_3$, and $BaSiO_3$, crystal chemistry and solid solutions (5) 136*c*.
thermosynthesis, high-temp. X-ray diffraction unit for (3) 79*f*.
sulfate, by conversion of ammonium sulfate by lime hydrate (9) 225*h*.

Calcium sulfate *(continued)*
dihydrate, crystal growth in aqueous solution (1) 35*e*.
effect on formation of portland cement clinker (1) 2*b*.
hemihydrate, finely divided, P (9) 226*a*.
morphology and crystal structure (9) 195*e*.
natural and synthetic, morphology and crystal structure (5) 142*j*.
settable, P (9) 226*b*.
solubility, dependence on index conditions in H_3PO_4 production (3) 53*a*; solubility in pure water (7) 151*a*.
sulfate dihydrate, crystals, precipitation (3) 52*c*.
by reacting $(NH_4)_2SO_4$ with $Ca(OH)_2$ (3) 82*j*.
transformation into hemihydrate in liquid water (7) 153*f*.
sulfate hemihydrate, supersolubility in pure water (7) 153*c*.
tri-, aluminate, hydration, in unsaturated compounds (5) 100*b*; hydration (7) 150*a*; hydration, effect of lignosulfonate fractions (7) 151*h*.
interaction with H_2O and solutions of $CaSO_4$ and $CaCl_2$, magnetic treatment effect (3) 52*f*.
sintering (9) 239*f*.
tri-, phosphate, alpha-, hydration (7) 182*c*.
tri-, silicate, crystal structure (3) 85*j*.
early hydration (9) 194*a*.
formation, effect of oxides of transition metals (1) 2*c*.
hydrated, composition and morphology (9) 194*d*.
hydration (3) 52*i*.
hydrolysis and hydration (7) 151*g*.
with pure expansive component, hydration (5) 101*i*.
structural transformation in, effect of $BaSO_4$ (3) 86*f*.
tri-, sulfate, pastes, hydration and strength, effect of gypsum (7) 151*e*.
tungstate, anisotropy of Poisson's ration of tetragonal crystals (5) 135*h*.
zirconate, ceramic properties (9) 227*f*.
green emitting Pr in (5) 140*a*.
synthesis, properties, and sintering (7) 186*c*.
$3(CaO.Al_2O_3).CaSO_4$, formation in system $CaCO_3$-$FeSO_4$ (5) 139*g*.
Calorimeters, industrial, for determining amount of heat during hydration of binders (9) 223*a*.
Calorimetry, of cement hydration (9) 196*j*.
of dental materials (9) 214*e*.
differential scanning, for direct determination of specific heats (7) 176*a*.
for quantitative determination of specific heat (3) 80*a*.
study of effect of irradiation on glass transition temp. of polyethylene (3) 56*i*.
drop, transposed-temp., for enthalpy of BeF_2 (7) 182*a*.
high-temp., of Ag_2SO_4 and alkali chromates, molybdates, and tungstates (7) 182*b*.
micro-, differential, of cement systems (1) 2*h*; differential, to study gypsum (1) 3*f*.
of phase composition of agloporite (5) 142*d*.
solution, to determine percentage of crystallinity of glass-crystal mixtures (9) 200*a*.
Capacitors, BeO, high-temp., P (3) 76*d*.
ceramic, with base metal electrodes, P (1) 28*b*.
high-voltage, high dielectric glass for, P (1) 14*d*.
for thin-layer circuits, P (3) 76*c*.
for wide freq. range, P (1) 28*c*.
ceramic disk trimmer, P (1) 28*c*.
electrical, P (1) 28*h*.
glass header, treating to reduce leakage currents, P (3) 61*h*.
with glass-metal layer, conductive, P (5) 126*j*.
high-voltage, P (7) 172*j*.
MOS, defects in, measurements (9) 218*b*.
multilayer, materials and mfg., B (7) 191*i*.
SiO_2, thin-film, prepared by rf sputtering (9) 218*d*.
thick-film, P (5) 128*g*.
variable ceramic, for electronic wristwatch, P (3) 77*c*.
Carbides, cemented, coated products, P (9) 212*h*.
surface-coated articles, P (5) 122*b*.
coatings, for laminates, P (5) 121*c*.
P (5) 121*c*.
deposition, high rate, by activated reactive evaporation, P (9) 213*e*.
layer, forming, P (7) 167*i*.
P (9) 213*c*.
metal, spherical particles, P (9) 213*j*.
product, coated cemented, P (3) 69*g*.
sintered, P (1) 22*i*.
Carbon, activity, determining through pressure, device for, P (7) 177*b*.
articles, apparatus for creating protective coatings on, P (7) 167*b*.
molded, P (1) 21*h*.
oxidation-resistant coated, P (3) 70*c*.
P (1) 21*b*; P (3) 69*c*.
protection, P (7) 168*a*.
shaped, P (1) 22*f*; shaped, impermeable to gases, P (1) 22*g*.
blocks, for cathodes for electrolytic cells, P (1) 21*c*.
oxidation (5) 118*f*.
bodies, porous, impregnated with nonferrous metals, P (3) 70*d*.
carbonation, of $Mg(OH)_2$ (5) 98*h*.
chemical vapor deposition, infiltration of magnesite refractory (9) 208*f*.
composition, and shaped article from, P (3) 69*c*.
-containing, porous material, P (3) 69*c*.
dioxide, to accelerate hardening of portland cement-based products (3) 52*b*.
effect on water durability of shaped xonotlite (7) 151*b*; effect on properties of gypsum paste and products (7) 151*c*.
Carbon dioxide *(continued)*
distribution, in ZrC during creep testing (3) 84*i*.
effect, on annealing point of SiO_2 glass (7) 157*g*.
on strength of magnesite refractories (9) 209*d*.
foams, P (9) 212*d*.
-F transport reactions, in C-filament incandescent lamps (5) 135*e*.
isotropic, P (9) 213*h*.
monoxide, catalytic oxidation on Pt (1) 40*e*.
oxidation on NiO and ZnO, effect of external electric field (1) 37*a*; oxidation, catalytic activity of $La_{0.7}Pb_{0.3}MnO_3$ (1) 38*d*.
oxidation (7) 184*c*.
powders, electric resistance, effect of atm (3) 73*f*.
pyrolytic, coating for nuclear fuel particles, P (5) 129*h*.
coatings, depositing, P (9) 213*h*.
isotropic, P (1) 21*f*.
reaction, with ZrO_2 at high temp. (3) 89*f*.
reduction, of Al_2O_3-SiO_2 refractories (1) 16*j*.
of HfO_2 (7) 185*i*.
in refractories, steel plant (9) 211*d*.
in SiC, effect on strength (5) 116*j*.
wetting, by Si and binary Si alloys (1) 5*c*.
Carbonaceous materials, bonding, to metal bodies, P (1) 21*a*.
particles, coating, and production of shaped bodies, P (9) 212*h*.
Carbonates, bi-, similar to hydrotalcite, formation conditions (3) 88*c*.
-containing materials, X-ray fluorescence analysis (5) 132*i*.
Fe in, microprobe determination, effect of staining (1) 32*h*.
inorganic, crystal structure transformations in (1) 36*a*.
lime from, industrial design for (9) 224*c*.
natural, stability (7) 186*j*.
as precursors, of materials for biomedical applications (9) 214*g*.
Casting, ceramic materials, in flip form, P (1) 24*a*.
composition, high-density, P (5) 124*j*.
extrusion, of metals, P (3) 69*j*.
foundry, forms, P (9) 213*c*.
metal articles, P (3) 69*d*.
molten metal, P (5) 121*f*.
properties, of Prosyanovskii-enriched kaolin (9) 215*i*.
slip, pressure, of ceramic articles, P (3) 72*g*.
Catalysts, activity, of mixed oxides containing TiO_2 (3) 92*a*.
Al_2O_3-SiO_2, high-strength, P (7) 178*i*.
auto emissions, P (7) 167*c*.
auto exhaust control, on SiO_2 cloth support, P (5) 111*d*.
boria-Al_2O_3, P (9) 226*g*.
cracking, attrition-resistant, containing clay, P (7) 178*g*.
hydrocarbon, using laminar heavy metal aluminosilicates, P (5) 134*i*.
for decomposition, of hydrocarbons containing Fe, P (7) 167*e*.
exhaust gas, support, P (1) 24*c*.
$LaMnO_3$, high surfaces area substituted (7) 171*i*.
mechanically activated, activation of Co powder for (9) 233*e*.
monoliths, temp. excursions in (3) 81*h*.
NiO-Al_2O_3, and NiO-SiO_2, factors affecting recovery (3) 71*d*.
nitric oxide reduction, Ru-containing stabilized (1) 34*a*.
oxidation, porous ceramic exhaust, P (5) 122*e*.
oxide, impregnated mixed, surface properties (9) 240*g*.
P (7) 179*a*.
suitability of aluminas as carriers (9) 236*b*.
Pb/chloride/Al_2O_3, isomerization, for gasoline, P (5) 134*i*.
refractory carrier, P (7) 168*b*.
SiO_2, large-pore, and polymerization, P (7) 178*j*.
and MgO supports, P (1) 24*i*.
SiO_2-Al_2O_3, P (7) 179*b*.
support, multitubular refractory, P (9) 213*f*.
resiliently supported rigid, P (9) 212*j*.
for synthesis, high-pressure, of cubic BN (3) 66*a*.
systems, for producing cubic BN, P (9) 212*e*.
for synthesis of cubic BN, P (3) 69*d*.
U-containing, for reforming process, P (5) 135*c*.
zeolite-based, P (3) 83*j*.
$ZnAl_2O_4$, P (7) 179*c*.
ZrO_2-Al_2O_3, and ZrO_2-SiO_2, thermal effect on surface acidity and catalytic activity (9) 241*b*.
Cathodes, for sputter-coating, glass sheets, P (7) 163*b*.
thin-film sandwich, electron emission from, effect of pinholes (1) 27*g*.
Cations, bivalent, effect on fine microstructure and properties of alkali-free glazes (5) 123*f*.
Cells, CdS-Cu_2S photovoltaic, photoconductive effect in (3) 74*a*.
conductivity, use in particle counting, P (7) 177*b*.
conductivity measuring, P (1) 33*j*.
electrolyte, silicate, P (1) 29*h*.
electrolytic, Al_2O_3 feeder for, P (1) 27*i*.
photovoltaic, antireflective coating to, P (7) 172*i*.
solar, diffused Si, electronic radiation damage in (1) 25*f*.
low-cost thin-layer Si (7) 171*g*.
polycrystalline, on low-cost substrates, P (9) 219*i*.
solid state, electrochromic—$RbAg_4I_5/WO_3$ system (3) 75*d*.
weighing apparatus, for diameter control of rotatable growing crystal, P (5) 128*j*.
Celsian, polymorphic transformations in (1) 43*j*.
Cement industry, air separation, and de-dusting (3) 50*d*.
air temp. in, measurement of sound propagation time for determination (3) 80*f*.
Cement industry *(continued)*
Alemannia, at Hoever, 3000 ton/day (9) 195*g*.
new plant, operating experience (9) 195*h*.
Algeria, Ain el Kebira (9) 195*g*.
atm protection in (7) 149*i*.
bed-blending in (5) 101*e*.
Burglengenfeld, process computer at (3) 53*i*.
Canadian, review (7) 150*b*.
computer control in (5) 98*j*.
in Congo, People's Republic, at Loutete (5) 98*j*.
design model for, computer-oriented (9) 194*i*.
driver machinery in, spray lubricants for (5) 101*e*.
dry-process, automatic control in (5) 98*b*.
electronic control systems in, freely programmable (3) 51*f*.
at Geisingen, clinker cooling exhaust air at (3) 53*i*.
design, construction, and early operation (3) 50*j*.
Goellheim, mix control with minicomputer (3) 52*h*.
Indian (7) 151*h*.
in Iran, Aria Cement (3) 52*j*.
Japanese Association, 29th meeting, B (7) 192*e*.
labor conditions, and accident prevention at Angara (5) 100*d*.
Laegerdorf, conversion from wet to semiwet process (3) 50*e*.
3300 tons/day production with Lepol kiln at (3) 51*e*.
Limhamn, conveying and loading installation for clinker and cement in (5) 98*f*.
machinery, water cooling for (3) 54*a*.
maintenance in, improved (1) 2*j*.
Mannersdorf, computer automation of cyclone preheater kiln at (3) 51*f*.
Medusa Company, expansion (7) 152*d*.
mill buildings, sound-insulated, ventilation (3) 53*j*.
modernization (1) 3*a*.
noise pollution in (7) 152*e*.
overhead in (5) 98*e*.
pollution in, control, B (3) 95*b*.
problems, during 1971 (1) 2*d*.
Readymix, at Beckum, methods, innovations, and operation (5) 100*b*; in Beckum, environmental protection and work safety (5) 100*c*.
Rybnitsk, increased production (1) 3*c*.
Spain, Molins, at San Vicente dels Horts, extension (9) 194*j*.
Switzerland, Cementfabrik Holderbank (9) 194*b*.
powerful apron conveyor for feeding crusher in (5) 101*d*.
tagged atoms in (1) 3*g*.
Yokoze, process operations and environmental protection (9) 196*a*.
Cements, additives for, from fuel wastes (5) 102*i*.
admixtures for, charaterization by gel chromatography (5) 98*a*.
alkalis in (9) 196*c*.
aluminous, quantitative X-ray phase analysis (7) 152*d*.
Al_2O_3, high-, P (3) 54*e*; high- (5) 101*g*; high-, conversion (7) 150*a*.
analysis, by atomic absorption (5) 97*h*.
asbestos, aqueous coating compositions for, P (7) 153*j*.
corrugated sheets, strength, effect of Ca silicate hydrates (9) 194*i*.
flat slabs, flow sheet for mfg. (9) 195*b*.
pipes, controlling thickness and pressure during formation (9) 195*i*.
properties, effect of autoclave treatment conditions (9) 194*c*.
properties, effect of trace components of clinker and microstructural characteristics (9) 194*g*.
structural properties, improved with organic polymers (5) 100*h*.
suspension, increasing homogeneity (9) 195*g*.
in Sweden (9) 196*c*.
thermal-shock-resistant, P (5) 102*g*.
Ba, fire-resistant Si-containing, P (3) 54*d*.
Ba aluminate, properties and uses (3) 50*i*.
Ba-Al_2O_3, properties and uses (7) 152*j*.
bag loading, automated, with Autopac II (7) 149*j*.
burning, by gas sorption, effect of moisture content of raw mix (9) 194*e*.
Ca aluminate, fireproof, P (7) 153*a*.
hot-pressed, properties (5) 101*i*.
P (9) 197*i*.
calcareous, blending (9) 194*b*.
cellular, P (5) 102*e*.
cementicious articles, P (3) 54*b*.
chamber pumps, improved construction (1) 2*i*.
chemical interaction, with glass fibers (7) 150*e*.
chemistry, graphic representation in (3) 52*g*.
International Congress in Moscow (3) 52*e*.
Raman spectroscopy in (5) 102*j*; Raman spectroscopy in (7) 152*f*.
technique problems of derivatography (1) 3*e*.
and technology, differential microcalorimetry to study (1) 2*h*.
thermal methods in (9) 194*a*.
Chilean, storage, effect of age and conditions (7) 151*h*.
-clay compositions, setting, optimization of conditions (1) 3*h*.
clinker, adherence to surface of impregnated refractory materials (7) 149*h*.
Al_2O_3, P (5) 102*d*.
burning at lower temp. (1) 1*j*; burning, P (1) 3*i*; burning in rotary kilns, mathematical model (5) 99*c*.
from cement slurry, P (3) 54*f*.
chemical composition, calcined using high-ash fuel (1) 2*d*.
composition, structure, and properties (5) 98*f*.

Cements clinker *(continued)*
cooling, apparatus for scrubbing gases after (5) 98*a*.
crystal structure, modifications (1) 3*f*.
grinding aids for (9) 195*b*.
Humboldt-type mfg. system in Hungary (3) 52*a*.
microscopic analysis (9) 195*d*.
minerals, hydrothermal reactions, DTA (3) 53*c*.
phase composition, by X-ray diffractometer (1) 3*f*.
properties, effect of MgO (5) 99*i*.
quality production by dry method (1) 3*c*.
raw materials, method and apparatus for burning, P (3) 54*f*.
silos, temp. stress conditions in (5) 98*g*.
stereological determination of fabric with automatic image analyzers (3) 51*e*.
study by scanning and transmission electron microscopy (1) 3*d*.
composition, P (3) 54*b*.
compositions, for flooring surfaces, P (1) 3*i*.
P (3) 54*a*.
with smooth fine texture, P (1) 3*j*.
and concrete, fiber reinforced, B (7) 190*f*.
strength correlation (3) 50*j*.
conveyor system for, pneumatic, improved (1) 2*j*.
cooling, P (3) 54*c*.
Cu slag in (7) 150*b*.
decorative, color stability (5) 98*c*.
dental, based on ion leachable glasses (3) 71*b*.
drill-blast work, improved techniques (1) 3*a*.
dry-process, internal processes in ZAB preheater for (3) 50*g*.
produces 3000 tons/day (1) 3*b*.
early strength, P (7) 153*a*.
electrically conductive, P (1) 28*h*; P (9) 197*a*.
expanded, granular, P (7) 153*b*.
expanding agent, P (1) 3*j*.
expansive additive, P (7) 153*a*.
expansive admixtures, of gypsum and $3CaO.Al_2O_3.CaSO_4.12H_2O$ (7) 152*a*.
fineness, specific surface area to define (5) 101*d*.
fly-ash, hydration and durability (5) 100*a*.
foam materials, coating or bonding webs or boards of, P (1) 3*j*.
frost resistance, experiments (7) 151*b*.
/concrete, high Al_2O_3, conversion (9) 194*f*.
glass fiber-reinforced, P (1) 4*a*.
grinding, effect of aids (5) 99*d*; effect of aids on adhesive forces (5) 99*e*; effect of aids on electric resistance (5) 99*g*.
experimentation with aids, at Tatabanya, Danube, and Labatlan plants (5) 99*d*.
intensification with surface-active substances (7) 151*j*.
with several classifiers (7) 150*b*.
use of aids in (1) 3*g*.
grouts, fluid characteristics (9) 195*i*.
hardened, by carbonation of serpentine containing brucite (7) 151*f*.
$Ca(OH)_2$ saturation of pore solutions in (5) 100*b*.
decreasing permeability (9) 194*h*.
in hardened concrete, estimation by nuclear method (1) 32*j*.
hardening, causes of disturbances during (1) 2*c*.
heat of hydration, measurement by heat of solution method (7) 152*b*.
high-MgO, with fly ash, room-temp. stabilization (3) 53*h*.
high slag, heat of hydration by heat of solution method, Yugoslav standard (5) 98*i*.
high-strength, use of waste Ba compounds in (7) 153*g*; use of waste materials containing B and Cr in (7) 153*h*.
hydrated, gap between science and technology, comments (5) 98*c*.
hydration, effect of polymerization (3) 53*e*; effect of Ca gluconate with $CaCl_2$ or glucose (5) 100*j*.
and hardening, effect of high temp. and pressures (5) 99*h*.
study of calorimetry (9) 196*j*.
hydraulic, fresh, treating, P (9) 197*d*.
regulating setting time, P (3) 54*g*.
improvement, P (7) 153*j*.
from Indian orthoclase (9) 195*a*.
joint ramming, P (5) 102*e*.
Kanazit, heat treatment (5) 101*f*.
karst forms, underground, determination by radio-wave method (1) 33*b*.
Keramzit, from clay shales, use of raw materials in (5) 100*d*.
quality improved with petrochemical waste additives (5) 100*f*.
K expansive, properties (5) 101*i*.
latex, for waterproofing and coatings (9) 196*e*.
lightweight, building components, P (1) 4*a*; for building, P (3) 54*e*.
low porosity, P (9) 197*c*; P (9) 197*d*.
MgO, foamed, (7) 153*b*.
P (7) 153*b*.
in refractories linings (9) 208*j*.
Mg oxychloride, reactions and equilibria in (3) 53*a*.
oxychloride, hardening water-resistant, study of products (9) 197*a*.
P (3) 54*a*.
paste, amount of bound water in, apparatus for determination (9) 222*f*.
analysis for triethanolamine (3) 50*e*.
autoclaved compressed (3) 50*h*.
electrical properties (9) 194*i*.
filtering, resistance of filter cloths (7) 152*i*.
hardened, internal friction in (7) 151*a*; hardened, mechanical behavior (7) 152*d*.
hardening, polarization factors in (9) 195*i*.
hydrated, N surface area variability (7) 153*h*.
and mortar, shrinkage (9) 196*h*.
setting time measurements (9) 196*h*.
slag-, hardened, water and N adsorption (9) 195*d*.
strength vs structure in (7) 153*a*.
strength-structure relations, effect of pore size and shape (7) 152*f*.
stress-strain distribution in (3) 51*c*.
superhigh early-strength, structure and strength (5) 101*i*.
permeable, composition, P (7) 153*c*.
phosphate (1) 3*i*.
plugging, review (5) 101*b*.
portland, blast-furnace, autoclaved, strength (5) 101*e*.
chemistry, and potential for rapid strength development (5) 98*b*.
Chilean, X-ray fluorescence analysis (7) 153*i*.
containing granulated fuel slags (1) 3*j*.
CO_2 to accelerate hardening (3) 52*b*.
hydration, phosphogypsum as setting regulator during (5) 100*i*; hydration, effect of triethanolamine (7) 151*a*.
mineralizing additive, effect on sintering Dinas bricks (9) 194*d*.
optimizing composition with ash from thermal electric power plant (3) 53*g*.
prehydration and strength development (1) 3*a*.
quick-setting using Ba-Mn slags (9) 196*c*.
rapidly setting, P (3) 54*g*.
setting (5) 101*c*.
slag, setting, effect of slag component in (3) 53*h*; slag samples, growth kinetics of strength (9) 195*c*.
sulfate resistance, effect of calcareous fillers (9) 194*c*.
sulfate-resistant, shortcomings of standard (1) 3*d*.
super-high early strength, Cr-containing phases in (3) 50*b*.
white, P (9) 197*f*.
portland clinker, crystal chemistry of constituents (5) 98*g*.
dry burning, behavior of alkalis, chlorides, and S in (7) 149*j*.
formation, effect of $CaSO_4$ and $BaSO_4$ (1) 2*b*.
high-grade, phase composition and hydration (3) 52*a*.
microstructure, B (3) 95*e*.
in mixed cements, determination of mineral composition (3) 50*h*.
modules as function of potential composition (1) 3*c*.
raw material mixtures for, rapid analysis (9) 196*h*.
portland paste, capillary porosity, effect of curing conditions (3) 51*g*.
dimensions of average pore, number of pores, and surface area (3) 51*a*.
hardened, strength and porosity, effect of curing (7) 151*d*; hardened, physical properties, polyethylene glycol effect (7) 151*i*.
low levels of chloride in (5) 98*j*.
powdered material, dispersing in combustion chamber, P (7) 153*b*.
production, equipment development (1) 2*h*.
increased (1) 3*b*.
properties, effect of clinker mfg. (5) 99*c*.
protective properties, and corrosive, for steel reinforcement (9) 194*a*.
rapid hardening, retarding setting time, P (9) 197*e*.
raw materials, and clinker, dry grinding (5) 102*f*.
grindability testing and tube mill design for (5) 99*g*.
relation between geological exploration and mineral output (1) 3*d*.
slurry, thickening and setting (1) 3*g*.
X-ray diffraction and spectral analysis (5) 102*c*.
raw meal, burnability (5) 98*f*.
clinkerability (7) 150*f*.
homogenizing lime content (5) 99*j*.
radiometric analysis of Ca and Fe content in (3) 50*e*.
raw slurry for, radiometric determination of Ca and Fe content in (3) 50*j*.
refractory, aluminous, dilatometry (7) 150*i*.
comparison of properties and uses (3) 53*c*.
siliceous, P (1) 22*d*.
resistance, to aggressive action of sulfates, chlorides and nitrates (9) 196*b*.
set accelerator, P (9) 197*j*.
setting, and hardening, effect of sugars (7) 151*j*.
introducing accelerators in (1) 3*d*.
and strength, effect of clinker cooling (3) 51*e*.
shrinkage-compensating, from alunitized quartzites (3) 51*b*.
P (7) 153*c*.
Shungizit, raw material base for (5) 99*b*.
siliceous aluminous (7) 151*f*.
slag, microstructure (9) 195*e*.
properties, effect of gypsum (3) 51*i*.
sulfate resistance (3) 51*c*.
slags in, blast-furnace, quantitative determination (7) 152*c*.
slurry, apparatus for pumping, P (7) 153*i*.
radiation-induced polymers in, P (5) 102*g*.
raw mix, with reduced water content, P (9) 197*d*.
structural-mechanical properties, effect of saturation coeff. (1) 2*d*.
specific surface, flow method for measurement (7) 151*d*.
stone, based on silicate hydrate phases (5) 99*g*.
pore structure in, electron microscopy (5) 99*j*.
structure, first stages of formation (9) 194*c*; structure and strength, effect of Na sulfate (9) 195*h*.
storage, mechanical activation problems (7) 152*h*.
strength, dependence on cement fineness (7) 150*e*.
and quality in concrete, test methods (7) 153*e*.
relation to cooling rate and type of cooler (7) 150*b*.
testing, improved methods (1) 2*j*.
studying, review (5) 98*h*.
sulfate resistance, new test (7) 176*g*.
sulfomagnesia, solidification, products (1) 3*c*.
suspensions, with water-soluble melamine resins (7) 150*c*.
systems, $CaO-SiO_2$ and $CaO-Al_2O_3$, kinetics of reactions in (1) 3*d*.
$CaSO_4-H_2O$ (9) 197*a*.
$3CaO.Al_2O_3-H_2O$ electrolyte and $4CaO.Al_2O_3.Fe_2O_3-H_2O$ electrolyte (7) 152*i*.
thixotropic, compositions, P (9) 197*e*.
from washer lime-sludge wastes (9) 197*e*.
white, and colored, chemistry (5) 98*c*.
from dolomites (5) 102*b*.
X-ray fluorescence, analysis, reduction of interelement effects during (7) 152*e*.
Centrifuges, for grain-size distribution, of clays (5) 131*a*.
Ceramic industry, electric energy in (9) 224*c*.
labor force reduction, 16 (3) 93*b*.
problems, with automation of mix preparation (3) 78*b*.
Ceramics, bar-shaped, premolding, rolling out to form plate, P (5) 130*g*.
data sources, critical surveys, B (3) 94*a*.
engineering properties, data, B (7) 190*d*.
and glass, bibliography, B (7) 189*h*.
hollow ware, made without machining, P (5) 130*a*.
international congress, XIIIth, 1974, B (3) 96*h*.
introduction to, B (7) 191*b*.
special, sixth international, 1974, B (3) 96*c*.
strength, effect of flaw shape (3) 86*g*.
Cerium, aluminate, synthesis, kinetics (9) 234*f*.
antimonide, magnetic properties (5) 141*c*.
chromite, synthesis, kinetics (9) 234*g*.
-ic oxide, dierite glass-ceramics (3) 56*a*.
oxide, with controlled density, P (1) 21*d*.
effect on phase transition processes during formation of cordierite glass-ceramics (3) 56*a*.
in enamels (5) 103*b*.
Cermets, articles, P (3) 69*f*.
coatings, sprayed, P (5) 122*a*.
composition, P (5) 121*e*.
conducting, for heating elements, limiting operating temp. (3) 66*e*.
$Cr-Al_2O_3$, physical properties, effect of O partial pressure (9) 210*h*.
granules, P (3) 69*f*.
materials, with metal-free surface zones, P (9) 212*g*.
MgO/Au, MgO/Ag, and MgO/Ni films, preparation and properties (9) 238*a*.
Ni, occlusion plated, properties (6) 97*c*.
Pd-Ag, tailless wedge bonding to Au wire, P (7) 173*j*.
plasma flame spray, powder, and articles from, P (9) 198*e*.
of refractory carbides, thermionic emission (7) 166*b*.
spinel, and Al-base, P (7) 154*d*.
spray-depositing, and self-sealing ceramics, for high-temp. metals (9) 197*h*.
TiB_2-NiAl, preparation and properties (3) 66*j*.
W-Al_2O_3, sintering (1) 20*a*.
Cesium, chloride, and KCl+CsCl, thermal properties (1) 47*j*.
$CsNdO_2$ (7) 160*e*.
$Cs_2B_6O_{10}$, crystallization, from undercooled melt (5) 105*g*.
Cs_2MoS_3Se, and Cs_2WSSe_3, ir and Raman spectra (9) 242*c*.
dimolybdate, enthalpy of formation (5) 146*a*.
distribution, in dioctahedral micas (5) 137*c*.
halides, activation energies for reorientation of complexes in (1) 35*b*.
hydroxide, reaction with zircon (3) 91*e*.
metaphosphate, reaction with Fe_2O_3 (1) 44*h*.
nitrate, reaction with natural aluminosilicates (1) 44*i*.
selenite, interaction with Ga selenite (5) 140*d*.
uranate, phase in Cs-U-O system (7) 173*i*.
Chalcogenide, crystals, halogen vapor deposition (9) 232*g*.
Chalcopyrite, leaching, at high temp., kinetics (7) 183*h*.
SO_3 action on (7) 179*d*.
structures, defects in (5) 137*d*.
Chalk, briqueting, and burning (5) 98*e*.
Chemical properties, of Al_2O_3, ceramics, treated in molten K_2SO_4 (7) 185*a*.
of glass, photosensitive, and glass-ceramic (5) 105*i*.
of $SrZrO_3$, and $SrHfO_3$ (1) 35*h*.
Chemistry, mechanochemical reactions, kinetics (5) 141*e*.
of non-metals, B (1) 48*b*.
processing, and design, encyclopedia, B (7) 190*b*.
of solid state, B (5) 147*d*.
Chert, peel techniques, acetate (1) 31*h*.
Chlorides, alkaline-earth metal, reaction with $ThCl_4$ (1) 45*a*.
metal, melts, interaction with enamel coatings (9) 198*i*.
in portland cement paste, mortar, and concretes (5) 98*j*.
Chlorine, Cl^- ions, optical absorption in NaF single crystals (1) 42*h*.
discharge, overvoltage in, on graphite electrode in AgCl-KCl molten mixture (3) 90*e*.
in glass-ceramics, slag (1) 6*h*.
Chlorite, in Nevada (5) 134*f*.
swelling, in soil of Dominican Republic (3) 92*b*.
Chlorites, alteration, into vermiculites by chemical oxidation (9) 231*j*.
-montmorillonite, expansion-collapse characteristics (9) 231*i*.

Chlorites *(continued)*
trioctahedral, nomenclature (1) 42*g*.
Chromatograph, KhL-69, for analyzing gases in glass bubbles (9) 203*d*.
Chromatography, gas, of decomposition of glass batches (5) 111*c*.
to determine sorption properties of Ti enamels (9) 197*j*.
gel, to characterize admixtures for cement (5) 98*a*.
thin layer, SiO_2 gel for (7) 176*j*.
Chromium, carbide, layer on surface of Fe, ferrous alloy, or cemented carbide article, P (3) 69*g*.
synthesis, on substrate from evaporated Cr and graphite (3) 68*d*.
chalcogenide powders, magnetic properties (3) 74*c*.
chalcogenide spinels, magnetic properties (5) 141*d*.
$Cr_xV_{1-x}O_{2-x}F_x$, structural, magnetic, and electrical properties (7) 187*e*.
Cr^{3+}, luminescence center in $SrTiO_3$ (7) 182*e*.
in $ZnWO_4$, EPR line shape (5) 136*h*.
dioxide, ferromagnetic, P (1) 28*b*; ferromagnetic, P (1) 29*e*; ferromagnetic, magnetic properties (1) 38*d*; ferromagnetic, P (3) 83*f*; ferromagnetic crystals, P (7) 172*f*.
highly coercive, P (1) 34*i*.
synthesis, from decomposition of CrO_3 with $HCrO_2$ seed crystals (9) 240*i*.
effect, on structure of point defects in NiO (7) 180*i*.
-ic oxide, and Cr, oxidative vaporization by O atoms (1) 38*c*.
oxidative vaporization kinetics (1) 43*c*.
reaction in Al_2O_3-CaO-Na_2O system (5) 144*d*.
sintering (5) 120*b*; sintering, effect of additives (9) 209*a*.
solubility in wustite (3) 91*j*.
standard free energy of formation (1) 45*h*.
suspensions and castings from, properties (9) 212*b*.
ions, recharging processes in ZnSe single crystals (1) 45*c*.
molybdate, and $CrWO_4$, new compounds (7) 188*e*.
oxide, and compounds, thermochemistry (5) 146*j*.
effect on thermal aging of $Al_2O_3/Cr_2O_3/K_2O$ catalyst (9) 236*e*.
ferromagnetic, P (5) 127*h*; ferromagnetic, P (9) 219*i*.
with low S content, P (3) 83*a*.
S-modified ferromagnetic, P (9) 220*c*.
rare-earth, energy transfer in $YAlO_3$ (7) 179*j*.
recovery, from bauxite residues (3) 83*b*.
sesquioxide, anhydrous, P (1) 34*e*.
silicide, thermodynamic properties (7) 188*j*.
telluride, thermodynamic properties (1) 27*d*.
trioxide, + Mgo, effect on zircon brick (5) 116*h*.
trivalent, and divalent ions in spinels (5) 146*i*.
in TV tube glass (7) 156*b*.
Chrysotile, orientation, in asbestos products, X-ray studies (9) 242*e*.
Circuits, board, connector for joining ceramic substrate to, P (5) 127*a*.
ceramic filter, P (7) 172*j*.
electrical, of multielectrode composite piezoceramic disk (9) 217*c*.
electronic, ceramic substrate assembly for, P (1) 28*d*.
fine line, from photoprintable compositions (1) 26*a*.
high reliability, printed-wiring boards for (1) 26*h*.
hybrid, apparatus for repairing, P (1) 28*a*.
IGFET, P (3) 76*e*.
inspection, by optical techniques (1) 32*i*.
integrated, device, sealing, P (5) 114*b*.
SEM and related electron beam techniques in (3) 75*a*.
semiconductor, P (1) 29*g*.
trends (5) 126*e*.
layer, with conductive layers on sides of substrate, P (3) 76*f*.
MOS, P (3) 76*h*.
printed board, ceramic, P (5) 127*a*.
screen-printed, high-tensile-strength thick-film Ag-Pd metalizations for (3) 73*e*.
thermocouple, testing (7) 176*d*.
thick film, P (9) 220*d*.
thin film, electric, P (7) 172*c*.
P (9) 219*g*.
Classifiers, acoustic, for separation of fine-fraction building materials (9) 206*d*.
air, revolving table, new dispersing apparatus for (5) 130*c*.
for clay minerals, P (7) 178*j*.
for particulate materials, P (7) 175*c*; P (7) 175*d*.
plane sieve, P (7) 175*a*.
vibratory, sieve/pneumatic, P (7) 175*d*.
Clays, Alabama, beneficiation (5) 133*c*.
attapulgite, heat-activated, enzymes bound to, P (9) 226*g*.
ball, quarrying and mining techniques (7) 168*f*.
Belkinsk, firing in rotary kilns (9) 209*c*.
beneficiation, method and apparatus, P (5) 134*j*.
bloating (5) 115*f*. In temp.-gradient-type test furnace (9) 223*a*.
blocks, large-size, avoiding drying distortion (3) 62*e*.
bodies, and greenware, properties, effect of preparation (9) 215*d*.
for brick, preparation system, P (3) 63*d*.
properties (3) 63*h*.
underground mining of (5) 134*f*.
calcareous, fired, SEM (3) 63*j*.
for tile (5) 122*h*.
ceramic, from Zamora Province, physicochemical properties (1) 43*h*.
and ceramic raw materials, B (1) 48*c*.
charge, for ceramic bodies, determination (9) 223*d*.
coloring agent for, Mn-containing, P (1) 16*b*.
Clays *(continued)*
Csoznyateto, geological examination (3) 82*b*.
palynological examinations (3) 82*h*.
quarry, exploitation problems (3) 82*b*.
relations between alkali content and other parameters in (3) 83*c*.
Csoznyateto deposit, qualification study (3) 52*g*.
deposits, in Germany (5) 134*a*.
prospecting by borehole geophysical methods (3) 83*b*.
prospecting by surface geophysical methods (3) 83*b*.
Drammen, quantitative fabric analysis using X-ray diffraction (9) 238*f*.
drying properties (1) 15*c*.
Egyptian, suitability for slip casting process (3) 71*f*.
EPR, and NMR studies (3) 84*g*.
faience, firing, chemical, mineralogical and textural transformation in (9) 214*h*.
finding, and sampling (5) 134*a*.
fired, bloating, SEM (5) 115*e*.
floatability, and electrophoretic mobility, effect of ionic surface active agents (9) 230*g*.
flocculation rate, spectrophotometric measurement (9) 239*b*.
foamed, brittle elements, P (1) 15*j*.
grain-size distribution, in gravitational and centrifugal field (5) 131*a*.
heat of immersion, in water (9) 215*h*.
industry, in Malaga, flexible design (5) 130*i*.
preparation, storage, and handling by automation (3) 82*g*.
International Conference, proceedings, 1975, B (9) 243*g*.
Kachitsa plastic, substituting in electrical porcelain by Bukovluk or Klisuritsa clay (9) 215*j*.
kaolin, semirefractory, beneficiation (5) 133*c*.
lanthanide in (5) 141*i*.
loess, as raw material for ceramic building elements (1) 15*e*.
low-melting, cellular glass from (9) 202*b*.
in floor tiles (5) 124*d*.
swelling (1) 46*i*.
minerals, and admixtures, ir spectroscopy, atlas, B (7) 189*j*.
analysis, plate holder for suction-on-ceramic-plate method of mounting for (1) 32*e*.
B (3) 93*f*.
bending effects on diffraction intensities (5) 139*f*.
classifying, P (7) 178*j*.
determinations, effect of heat-treating illite-smectite (9) 222*g*.
H, polybasic acid character (1) 43*i*.
by hydrothermal alteration of basaltic rocks (5) 135*i*.
interaction on Atterberg limit (9) 227*c*.
rare earth element adsorption on (5) 144*b*.
structure and properties (1) 34*i*.
thermochemical approximations for (3) 93*c*.
mixed material, P (5) 135*a*.
moisture reduction, by pressing and draining, P (1) 31*d*.
montmorillonitic, studies (5) 134*j*.
particles, expanding, P (1) 34*a*.
particle size, effect on grade of Keramzit gravels (9) 194*f*.
pits, geological service in (3) 82*b*.
in public traffic routes, geotechnical and soil mechanics in planning (3) 63*a*.
plastic, structural-mechanical properties (3) 71*f*.
plastic bodies, spontaneous elastic deformation (3) 71*h*.
for porcelain, electrotechnical, from Nizhne-Uvel'skii deposit (3) 72*a*.
potash ores, continuous flotation (5) 133*g*.
preparation, choosing machines for (3) 78*h*.
pyroprocessing, for absorbent markets (1) 15*g*.
quality control, use of Winkler's triangular diagram (3) 78*a*.
refractory (1) 34*c*. From Chepurlyantsi and Radolovtsi deposits (5) 134*j*.
min. wt of specimens during sampling (9) 222*e*.
from Oktyabr'sk deposit (1) 20*e*.
from Sardinia (9) 225*g*.
rocks, mechanical excavation, specific resistance in (1) 34*c*.
sand-coated, for handmade brick, P (5) 115*b*.
Serraria, chemical and geological study (7) 179*i*.
sintering, with mineralizer and surfactant additive, kinetics (9) 215*c*.
obtained during electromagnetic treatment of water (1) 45*c*.
strength, with small moisture content (9) 239*i*.
structure, SEM (3) 91*c*.
Swat coarse fraction, as raw material for ceramic bodies (5) 133*j*.
system, interstratified, closed form equations for X-ray diffraction by (5) 135*j*.
transformations in, by firing, Moessbauer study (7) 184*d*.
vermiculite, from Sweden (7) 178*d*.
-ware articles, hollow, P (9) 221*j*.
-water mixtures, heats of compression (5) 140*d*.
-water system, thermodynamics (3) 71*i*; thermodynamics (9) 223*i*.
weighing (3) 79*a*.
in white ceramics, properties (9) 216*c*.
white-firing, carbonate-containing Troshkovsk, for porcelain (1) 23*i*.
whiteware, fluidification and dispersion (9) 215*f*.
Cleaners, stack, of solid and gaseous wastes (5) 132*f*.
Cleaning, glass, P (9) 204*g*.
Clinoptilolite, natural, sorption of metal cations on (9) 239*j*.
Coatings, apparatus, vacuum, P (3) 79*b*.
apparatus for, of internal surfaces of tubes, P (7) 175*d*. P (9) 221*h*.
ceramic, catalytically oxidizing, P (7) 154*i*.
Coatings ceramic *(continued)*
high-temp. low-friction, for gas turbine regeneration seals, P (1) 5*f*.
Ni and Cr substrates for, P (9) 198*g*.
conductive, for screens (3) 72*e*.
direct-on, of C-rich iron, P (3) 55*a*.
electrically conductive, P (9) 219*g*.
electrically insulating, for steel, P (3) 55*a*.
for ferrous substrates, P (7) 154*j*; P (9) 198*f*.
for foundry sand molds, P (3) 69*h*.
heat-resistant protective, and special (1) 18*b*.
highly refractive oxide, permeable to light for use in coated optics, P (1) 28*e*.
inorganic, P (5) 104*b*.
low-porosity, P (9) 198*f*.
metalization, of ceramic green sheets, P (7) 173*c*.
metalized, patterned, P (1) 28*c*.
metalized device, P (7) 173*c*.
metalizing, composition, P (5) 127*g*.
compositions, P (9) 219*e*.
pastes, P (7) 173*c*.
metallic, on glass surfaces (3) 58*a*.
nonmetallic, application, P (7) 154*i*.
P (5) 103*h*; (5) 103*i*.
plasma-sprayed, double-layer, structural characteristics (1) 4*i*.
process, Vacuum, P (3) 79*b*.
protective, application, P (3) 69*a*.
devitrified porous, P (3) 55*a*.
and frits for, P (7) 154*c*.
P (9) 198*g*.
from refractory oxides, aqueous suspensions (3) 65*f*.
rotary nozzles for, P (1) 31*d*.
for steel, plasma-sprayed TiC-containing, P (7) 167*i*.
on substrates, apparatus for formation, P (5) 126*h*.
measuring amount, P (5) 127*g*.
Ta_2O_5, antireflective, P (3) 55*c*.
thermally sprayed, P (7) 168*a*.
thermal protective, to withstand rotating turbine blades (7) 153*g*.
TiC-containing, P (3) 70*e*.
vacuum, apparatus, P (3) 77*b*.
vitreous, P (9) 198*h*.
Cobalt, carbonate, antiferromagnetic, weak ferromagnetism (9) 242*d*.
chloride, crystals, antiferromagnetic resonance in (1) 35*i*.
chromite, stoichiometric, hydrogen reduction of Co-Cr spinel oxides (7) 182*e*.
Co_2MnSn, alloy, Moessbauer effect in (9) 235*h*.
Co_5Ge_3, films, short-range order in (9) 238*i*.
deposition, electrochemical and electrolytic, on cast enamel parts (7) 153*i*.
diffusion, in GaAs, effect of complexing (5) 137*b*.
$[Co(NH_3)_6]^{3+}$, cation exchange, from H-Co-$(NH_3)_6$-vermiculite, by NH ions (7) 179*e*.
germanate, magnetic structure (9) 234*g*.
ions, effect of anisotropy of $CdCr_2Se_4$ (1) 38*h*.
liquid sintered, -rare earth intermetallic product, P (3) 77*f*.
monoaluminide, magnetic properties (5) 141*g*.
oxide, beneficiating, segregation process for, P (3) 83*b*.
and hydroxide, X-ray photoelectron studies (7) 189*a*.
powder, mechanical activation for catalyst (9) 233*e*.
precipitation, in Co-doped Al_2O_3, thermodynamics (1) 47*d*.
sintered, -rare earth intermetallic product, P (3) 77*f*.
^{60}Co, ceramic fuel forms (3) 78*c*.
Coesite, formation, from GeO_2-SiO_2 glass (3) 57*g*.
Colloids, gels, actimide, sintering, P (9) 221*f*.
alkali-SiO_2, in concrete, microanalyses (3) 52*h*.
Al_2O_3, hydrated, synthesis (5) 134*d*.
Fe_2O_3 and Cr_2O_3 (9) 231*d*.
SiO_2/metal oxide, P (3) 83*h*.
SiO_2, P (3) 83*h*; SiO_2, for thin layer chromatography (7) 176*j*; SiO_2 surface, hydroxyl group distribution (9) 229*g*.
hydrogels, aluminosilicate, electrolyte sorption effect on cation exchange (9) 240*d*.
Na aluminosilicate, kinetics of thermal dehydration (7) 183*i*.
hydrosol, SiO_2, new binding material for gypsum (5) 99*i*.
TiO_2, structure of particles (3) 92*e*.
sols, or gels containing mixed W and Ti oxides, P (5) 122*a*.
Pu oxide, P (7) 174*d*.
silicic acid, relation between time of gelation and concentration of added electrolyte in (1) 45*e*.
SiO_2, containing large-particle-size SiO_2, P (7) 179*b*.
SiO_2, correcting for nonuniformity, P (5) 127*b*.
SiO_2, gelling, P (1) 21*b*.
of ultrafine particles of synthetic hectorite, P (5) 135*c*.
Color, in business, science, and industry, B (3) 93*i*.
centers, effect on dislocation charge in alkali halides (1) 40*f*.
in $LiTaO_3$ single cyrstals (3) 85*b*.
decolorization, of cut glass by oxides of rare earth elements (9) 199*h*.
F centers, and F_A(Na), excited, deexcitation in KCl (1) 38*g*.
in glass, Ag-containing (5) 105*d*.
of pigments, Ce oxide-Mo(VI) oxide system (9) 215*c*.
sorting, of irradiated materials, and calibrated color comparison, P (5) 132*a*.
of quartz colored by radiation, P (7) 177*a*.
stability, of decorative cements (5) 98*c*.
temp., measuring system, P (3) 81*e*.
Colorimetry, automated, to determine ferrous and total Fe in silicate rocks (1) 32*f*.
Columbite, /isiolite, electrostatic energy (9) 231*c*.

Compaction, of ceramic materials, degree before firing (5) 131*c*.
isostatic, powder metallurgy, P (7) 175*b*.
of Sc_2O_3, effect of mode of grinding (1) 37*f*.
Compactors, impact, P (1) 31*b*.
Compacts, diamond-metal, P (7) 149*g*.
of glass and Ni spheres, electrical resistivity (3) 87*b*.
with low resistivity, electrical, P (7) 172*a*.
Composites, articles, C fiber-reinforced, pervious low-density, P (3) 70*c*.
Ba mica/Al_2O_3, thermal conductivity and linear expansion (1) 20*f*.
ceramic, technology progress (9) 211*h*.
ceramic fiber-ceramic matrix, fabrication and properties (9) 215*e*.
ceramic members, apparatus for, P (3) 54*j*.
ceramic-waste, by hot-pressing (5) 128*c*.
C fiber, acoustic emission techniques applied to (7) 165*a*.
C fiber-glassy C, graphitization and microstructure (3) 65*h*.
C/graphite C, high-strength, P (3) 69*f*.
C-metal, P (9) 212*e*.
coloring, P (7) 178*h*.
as construction materials, of gypsum, by desulfurization of flue gas (7) 151*b*.
diamond, polycrystalline, P (3) 70*d*.
ferrite-dielectric, by arc plasma spray process (9) 216*j*.
fiber-, material, P (1) 21*j*.
glass, low-expansion bonding, P (9) 205*a*.
glass fiber, nonwoven continuous (9) 197*i*.
glass matrix, strength and fracture in (3) 59*c*.
glass polymer, P (9) 205*e*.
graphite, pyrolytic, P (7) 168*a*.
graphite-fiber-graphite, high-temp., P (7) 154*b*.
handbook, of materials science, B (7) 190*g*.
heat-resistant, reinforced, P (3) 69*d*.
HfB_2 + 20 vol% SiC, high-temp. oxidation behavior (3) 65*c*.
high-strength, P (3) 69*f*.
interfaces in, control of cracks by (3) 54*h*.
materials, by infiltration of Si_3N_4 (9) 208*a*.
P (1) 21*g*; P (1) 21*h*.
media, transport processes in (1) 47*h*.
members, fiber-reinforced, P (5) 121*h*.
metal, graphite-fiber-reinforced, P (3) 55*b*.
metal-ceramic, P (7) 167*h*.
metal/dielectric-powder, thermal conductivity (3) 75*j*.
metal matrix, graphite fiber-reinforced, P (9) 213*d*.
micro-, pyrolytic graphite-SiC, P (3) 70*e*.
reinforced pyrolytic graphite-SiC, P (5) 122*h*.
Ni-base, C fiber-reinforced, P (5) 121*c*.
Ni-ZrO_2, and Ni-Al_2O_3 powder, structure (1) 5*a*.
panels, isometric scan method for ultrasonic evaluation (1) 18*d*.
piezoelectric, P (1) 29*c*.
resin matrix and C fibers, P (1) 5*e*.
Si/SiC (3) 68*a*.
silicate aggregate, and cellular plastics (5) 98*d*.
spheroidal particle, P (3) 49*f*.
UO_2-Mo, thermal property measurements (1) 30*b*.
Compounds, $A^IB^{III}C^{VI}$, and $A^IB^VC_2^{VI}$, electrical conductivity and thermoelectric power (1) 38*g*.
II–VI, melt compositions during crystal growth (1) 42*f*.
$M_3UO_2F_5$, (M = K,Rb,Cs,NH_4), Raman diffusion spectra (5) 140*a*.
pure simple, glassy states, thermodynamic study (1) 47*c*.
pyrochlore type, order and disorder in (7) 184*b*.
Computers, to calculate, composition of optical glasses (1) 13*a*.
for calculation, of ceramic batches and optimization of batch costs (9) 242*i*.
of Madelung constants, and recalculation for spinel type (7) 175*i*.
in cement industry (5) 98*j*.
Felix C-256, for cost calculations in fine ceramic industry (1) 48*g*.
mini-, for mix control in cement industry (3) 52*h*.
for preheater-kiln-cooler (3) 50*d*.
process, at Burglengenfeld cement works (3) 53*i*.
Concretes, aerated, P (1) 3*h*.
products from (1) 2*h*.
agloporite, from ash of heat and electric power plants (9) 195*h*.
agloporite gravel, from ash of heat and power plants (9) 196*b*.
alkali admixture effect (7) 152*c*.
alkali-SiO_2 gel in, quantitative microanalyses (3) 52*h*.
alkali-SiO_2 reaction in (3) 52*c*.
aluminosilicate, in lining of water-cooled nozzles of open-hearth furnaces, changes in (9) 208*h*.
with Ba compounds, sparingly soluble, P (7) 153*j*.
beam, analysis of design (5) 97*i*.
binder for, P (3) 54*a*.
bituminous, nonlinear viscoelastic properties (5) 100*f*.
of Bulgarian cements, resistance under complex corrosive conditions (9) 196*b*.
and cement, fiber reinforced, B (7) 190*f*.
strength correlation (3) 50*j*.
from cement compositions, P (9) 197*j*.
cement in, strength and quality, test methods (7) 153*e*.
chloride in (5) 98*j*.
color, effect of steam curing (5) 99*j*.
corrosion, in solutions of sulfates of nonferrous metals (3) 50*f*.
electrically conducting, P (3) 54*c*; P (9) 197*a*.
epoxy-cement systems, properties (3) 52*f*.
expansion, reduction with reactive aggregates from carbonate rock (7) 152*e*.
fiber-reinforced, P (1) 3*j*.
fibrous, review (7) 151*c*.
flow properties, and/or mechanical strength, binders for, P (5) 102*f*.
fresh, capillary pressure action in (7) 149*h*.
properties, effect of aggregate properties (5) 99*i*.
glass-fiber-reinforced, P (3) 54*d*.
glass waste for, as coarse aggregate (3) 60*d*.
gritstone slabs, cutting device for, P (9) 221*h*.
hardened, cement content, estimation by nuclear method (1) 32*j*.
heat-resistant (3) 52*j*.
heavy, with iron ore and wastes as coarse aggregates (3) 51*h*.
high-Al_2O_3 cement (3) 51*i*.
hydration, and hardening, after mixture with water (9) 195*f*.
Keramzit, creep and shrinkage, calculation (7) 150*a*.
with low consumption of cement (9) 195*j*.
Keramzit gravels, grade, effect of particle size of clays (9) 194*f*.
Keramzit-perlite, properties, effect of porosity (7) 151*j*.
lightweight, stress-strain diagrams for (5) 101*g*.
test specimens from (3) 52*d*.
Mg phosphate, P (9) 197*c*.
periclase, based on Zr phosphate binders (3) 66*d*.
polymer, pore structure, electron microscopy (5) 99*j*.
-polymer mixtures, with high technical indexes under ionizing radiation (3) 52*e*.
pore solutions, alkalis in (9) 196*c*.
refractory, and binder, P (1) 22*a*.
for blast-furnace shafts (7) 164*i*.
cellular (9) 196*a*.
from chamotte, Al_2O_3, cement and water glass, P (1) 22*a*.
containing aluminous cement with active Al_2O_3 (1) 19*d*.
gas, for heat insulation and lining of furnaces, P (1) 22*b*.
with hydraulic binders (7) 150*f*.
lightweight, applying and compacting (3) 52*e*; lightweight, with reproducible properties (9) 210*i*.
for lining steel casting ladles (1) 20*c*; for lining vacuum furnaces, P (1) 22*b*.
MgO, casting and properties (1) 16*a*.
P (3) 70*g*.
plastic, of aluminosilicate composition (5) 118*i*.
silicate, formation conditions and nature of binding phases in (5) 99*f*.
tensile strength (7) 153*d*.
Condensates, amorphous, formation from vapor phase (1) 42*c*.
Conduction, electronic, in oxides, at high temp. (7) 181*h*.
Conduction, ionic, in glass (9) 201*a*.
Conductivity, electrical, of GaAs, semi-insulating (3) 75*a*.
Conductivity, electrical, of $Ag_6I_4WO_4$, solid electrolyte (5) 125*g*.
of $A^IB^{III}C_2^{VI}$ compounds, and $A^IB^VC_2^{VI}$ (1) 38*g*.
of aklali halides, molten (3) 87*b*.
of alloys, $MoSe_2$-$TaSe_2$($Mo_{1-x}Ta_xSe_2$) (1) 26*f*.
of aluminas, doped transition (1) 25*c*.
of Al_2O_3 (7) 187*a*. beta, effect of water (9) 230*f*; beta and beta″ (9) 233*e*.
of CaV_2O_6 (1) 36*f*.
of chloride systems, KCl-$CaCl_2$, KCl-$SrCl_2$, and KCl-$BaCl_2$ (3) 87*a*.
complex, of $Eu_{0.99}Gd_{0.01}S$, $Eu_{0.99}Gd_{0.01}Se$, and $Eu_{0.95}Gd_{0.05}Se$ (3) 86*j*.
composition, P (3) 76*j*.
of crystals, semiconductor, changes during passage of shock waves from pulsed laser (5) 124*f*.
of faujasites (7) 180*f*.
of ferromagnetic substances, with domain structure (1) 38*f*.
gas-phase, for measuring transition processes in GaAs epitaxy (9) 218*h*.
of $Ga_xIn_{1-x}Sb$ (1) 39*h*.
of Ge, effect of nonuniform magnetic field (1) 37*g*.
polycrystalline, dependence on temp. and pressure (5) 137*d*.
of gels, Fe_2O_3 and Cr_2O_3 (9) 231*d*.
of Ge nitride films (1) 24*j*.
of glass, alkali silicate, effect of thermal history (1) 7*j*.
Ge-Te (1) 7*d*.
K_2O-SrO-SiO_2 (3) 56*h*.
melts (5) 108*f*.
phosphate (3) 56*j*.
silicate, effect of Al_2O_3 (5) 105*e*.
with wide distribution of activation energies (5) 110*h*.
high-temp., of AlN (7) 182*b*.
of LaS, and alloy $LaS_{1.47}$ (5) 138*h*.
low-temp., in transition-metal oxides (7) 183*d*.
material, P (9) 213*b*.
in metal halide, intervalence mixtures (9) 228*c*.
of NaCl, KCl, and KBr single crystals (9) 231*c*.
of Na-montmorillonite, suspensions (5) 138*e*.
of NH_4 halide (7) 188*h*.
of NiO-Cr_2O_3 solid solutions (1) 45*h*.
of NiO-TiO_2 system (7) 181*b*.
polaronic dc, in Ni-Fe ferrites (3) 74*c*.
of proustite, and pyrargyrite single crystals (9) 233*d*.
of rutile, single crystals (9) 231*c*.
of Sc_2O_3 (9) 238*e*.
of SiO_2 (9) 227*j*.
in Si-SiO_2-Al structures (1) 26*b*.
of Si_3N_4, P (9) 219*f*.
in Si_3N_4 thin films (1) 25*a*.
of Sn, in magnetic field (5) 125*a*.
Conductivity, electrical *(continued)*
of solid solutions, in system CeO_2-La_6WO_12 (1) 38*g*.
of solid systems, simultaneous determination with thermogravimetric curves (3) 79*d*.
studies, of defect centers in Si (5) 137*b*.
of tetraborides, of rare earth metals (1) 38*i*.
three-proton, in CdS (7) 184*a*.
of TiO_2 (5) 125*d*. sintered bodies, effect of Al_2O_3 and Nb_2O_5 (9) 229*i*.
of Y_2O_3 (5) 138*f*. and TiO_2, defect study (7) 188*e*.
of Y_2O_3-ZrO_2, effect of grain size (9) 230*i*.
of ZnO, dependence on degree of sintering (3) 85*i*.
in $ZnSiAs_{2-x}P_x$ system (7) 170*h*.
Conductivity, electroaic, in ferromagnetic structures, multidomain, kinetics (1) 41*d*.
in glass, correlation of dielectric dispersions with (1) 6*h*.
partial, in ZrO_2(CaO) and $ThO_2(Y_2O_3)$ soild electrolytes (3) 90*g*.
of ThO_2-Y_2O_3 electrolytes, and V-group-metal electrodes (9) 231*a*.
Conductivity, ionic, in glass, correlation of dielectric dispersions with (1) 6*h*.
in KCl-KBr, mixed crystals (1) 37*b*.
of Li_2GeO_4, Li_2GeO_3, and $Li_2Ge_7O_{15}$ (9) 233*g*.
measurement, electrode effects in (3) 87*d*.
Conductivity, thermal, of Ba mica-Al_2O_3 composites (1) 20*f*.
of BaO-SrO solid solutions (9) 241*j*.
of BeO, effect of additives (3) 86*e*.
of blocks, graphite- and C-containing blast-furnace, apparatus for (9) 222*f*.
of BN, "isotropic" and hot-pressed (7) 166*a*.
of CdS_xSe_{1-x}, solid solutions (7) 188*d*.
coeff., during heating and/or cooling geometrically simple bodies (1) 32*f*.
of composites, metal/dielectric-powder (3) 75*j*.
of glass, TiO_2 and Li_2O (1) 12*b*.
measurements, error calculation by modified Kohlrausch technique (1) 33*e*.
meter, P (7) 177*e*.
of mica, as function of temp. and direction of heat flow (1) 47*e*.
of mineral wool slabs (9) 212*e*.
porosity-, correlations for ceramic materials (1) 44*a*.
of refractories, high conductivity (3) 68*f*.
hot-wire method of determination (5) 131*d*.
periclase and periclase-spinel (3) 68*g*.
of refractory oxides, arc-imaging technique for measuring (1) 32*c*.
of solids, determination with thermal diffusivity and capacity (1) 32*a*.
by steady heat flow method using linear heater (3) 80*c*.
of tetraborides, of rare earth metals (1) 38*i*.
of U_3O_8 (1) 30*a*.
Conductors, electrical, Ag, Cd-containing, P (3) 76*c*.
cermet, adherent solderable, P (1) 27*i*.
electrically connecting, on glass substrates, P (3) 75*j*.
glass conduit for, P (1) 14*i*.
Pt-Ag thick film (3) 72*i*.
thin layers, galvanomagnetic phenomena in (5) 140*a*.
Conferences, ceramic, international, proceedings 1975, B (9) 243*e*.
on ceramics, XIIIth international congress, 1974, B (3) 96*h*.
clay, international, proceedings 1975, B (9) 243*g*.
on enameling, Australasian, proceedings, B (5) 148*d*.
on gas turbine materials, 1974, B (3) 95*c*.
on glass, international congress in Japan, 1974, B (3) 95*e*.
on materials science, and engineering, structure and properties of materials, B (5) 148*g*.
on nuclear physics, 1975, B (3) 95*h*.
on special ceramics, sixth international, 1974, B (3) 96*c*.
Conveyors, apro, powerful, for feeding crusher in cement industry in Switzerland (5) 101*d*.
for cement, pneumatic, improved (1) 2*j*.
pneumatic, fluidized, P (1) 31*h*.
for transport without breaking down granules in tile industry (5) 130*d*.
Coolers, grate, development (1) 2*h*.
reciprocating (9) 196*j*.
planetary, for large rotary kilns (5) 100*j*.
push-type, for cement, double air pass through (5) 97*f*.
for sintered material, P (5) 130*f*.
Cooling, cement, P (3) 54*c*.
glass articles, pressed, P (9) 204*a*.
hot particles, P (3) 79*d*.
Mn ore, P (5) 134*h*.
vibratory mill, P (3) 79*d*.
water, for machinery in cement plants (3) 54*a*.
Copper, in atmospheric particles, microdetermination (3) 80*e*.
beneficiating, segregation process for, P (3) 83*b*.
$CuGaS_2$, electrical properties (7) 181*f*.
$CuInSe_2$, single crystals, p- and n-type (1) 39*a*.
Cu(I) oxide, sintering (9) 239*e*.
$CuPbSbS_3$, crystals, growth and physical properties (1) 39*g*.
Cu_2O-CuO-glass films, thin, electrical resistivity (3) 73*g*.
deposition, electrochemical and electrolytic, on cast enamel parts (7) 153*i*.
-ic bromide, and CuBr, enthalpies of formation (5) 139*c*.
interaction, with Sb in Ge-based solid solutions (3) 89*f*.
ions, in solder glass (9) 203*c*.
-ous oxide, creep (1) 36*g*.
thermodynamics and kinetics of point defects in (7) 188*b*.
oxide, and hydroxide, X-ray photoelectron studies (7) 189*a*.
removal, prior to water hardness titration (9) 223*f*.

Copper *(continued)*
slag, as cement additive (7) 150*b*.
tellurite, high-pressure synthesis and crystal structure (7) 182*a*.
tungstate, antiferromagnetics, critical temp., effect of magnetic dilution (5) 125*f*.
Cordierite, ceramic, pore size control in, P (7) 167*i*.
electroinsulating materials, effect of Fe compounds on properties (3) 71*f*.
single crystals, flux-grown, properties (5) 144*i*.
-structure ceramic, self-glazing, P (3) 72*g*.
synthesis, effect of WC (9) 233*a*.
Cores, ferrite, Mn-Zn, P (1) 28*h*.
ferrite pot, cracking in (5) 124*j*.
foundry, and molds and moldable mixture for, P (7) 167*j*.
self-hardening mixture for, P (9) 214*f*.
magnetic memory, Li ferrites for, P (9) 219*c*.
memory, from ceramic powder, P (1) 28*i*.
nuclear reactor, device for supporting, P (9) 221*a*.
reactor, restraint system for core elements of, P (1) 30*j*.
refractory bore, for cast-iron castings, P (3) 70*f*.
square-loop, in 2VT ferrite (3) 74*h*.
thermal storage, P (7) 168*a*.
Corrosion, of Al_2O_3, by V_2O_5 (5) 116*h*.
in brick, for converter (5) 116*j*.
reinforcement (5) 114*g*.
of building materials, enamel and combined coatings for protection (9) 198*c*.
of concrete, in solutions of sulfates of nonferrous metals (3) 50*f*.
films, on bioglass implant materials, Auger spectroscopy (3) 55*b*.
of glass, soda-silica and soda-lime-silica (3) 55*j*.
molten salt, of SiC and Si_3N_4 ceramics (7) 184*e*.
of mullite ceramics, by Na-containing silicate melt (9) 208*d*.
of Pt-Rh 90-10 alloy, in glass melts (7) 155*c*.
of refractories, casting pit, by molten steel and slag (5) 116*b*.
by molten glass, tests (9) 208*e*.
relation to properties, literature survey (9) 210*b*.
static, of glass (7) 159*f*.
of steel, effect of glass dissolution (9) 200*d*.
stress, of low temp. solder glass (7) 159*h*.
Corundum, bonding, coarse grain (5) 116*e*.
ceramics, with decreased firing shrinkage (5) 116*b*.
deformation shrinkage during firing, decreasing (9) 208*g*.
physicomechanical properties, effect of B_2O_3 (9) 209*b*.
crystals, altering appearance, P (1) 20*i*; altering appearance, P (7) 178*e*.
porous, granulated, P (7) 178*i*.
single crystals, growth, P (7) 172*i*.
substrates, nonporous coating on, P (7) 170*g*.
synthetic, Zr-containing, use in charge of aluminosilicate refractories (1) 20*g*.
Cracks, in Al_2O_3, thermally shocked, healing (7) 180*g*.
in ceramic materials, detection by acoustic emission analysis (9) 222*c*.
in composites, control by interfaces in (3) 54*h*.
detector, P (7) 177*b*.
energy, criteria for brittle fracture (9) 228*g*.
in ferrite pot cores (5) 124*j*.
front profiles, in double torsion specimens of brittle materials (3) 85*e*.
in glass, slow growth, effect of phase separation (5) 106*b*.
in glass plate (7) 158*c*.
growth, in brittle materials, load-relaxation techniques to study (3) 84*g*.
in mineral glass (1) 6*h*.
subcritical, in SiC and Si_3N_4 (7) 183*d*.
and time-to-fracture in brittle materials (9) 238*g*.
in K dihydrophosphate, crystals (9) 228*f*.
interaction, with selected singularities, finite-element techniques to compute (1) 39*b*.
in UO_2, healing correction, comments (3) 77*f*.
propagation, in glass as interpretation of static fatigue (7) 155*e*.
slow, in glass (1) 11*h*.
in ZnSe, effect of microstructure (1) 40*g*.
velocity, in double-torsion specimen, function of shear wave velocity (7) 186*g*.
Creep, behavior, of ceramic solid-solution alloys (3) 85*f*.
in brickwork piers, effect of stress (5) 114*e*.
of Cu_2O (1) 36*g*.
data, for brickwork (5) 114*a*.
deformation, of reaction-sintered Si_3N_4 (3) 85*g*.
of 0° sapphire (3) 85*f*; of 0° sapphire, correction (5) 136*j*.
in fireclay, dense refractory products (7) 164*a*.
of high-Al_2O_3 refractories (1) 17*b*.
high-temp., of LiF, effect of impurities (3) 86*h*.
of Keramzit concrete (7) 150*a*.
of refractories, in various furnace atm (5) 116*c*.
in solids, B (5) 147*h*.
tensile, of MgO single crystals (5) 140*f*.
testing, of ZrC, change in C distribution during (3) 84*i*.
in TiB_2-TiC system, and ZrB_2-ZrN (1) 36*g*.
Cristobalite, high, in Middle Eocene deep-sea chert (5) 140*e*.
moisture expansion (1) 9*j*.
Crushing, energy in (1) 30*h*.
granulation kinetics, probability of coalescence in (1) 30*i*.
metal powders, and ceramic, P (5) 130*a*.
stone products, fine-grain content (5) 139*a*.
Crushing apparatus, effect, on properties of crushed material (5) 130*f*.
fluidized bed, analysis of stability of granulation processes in (9) 221*i*.
gyratory, P (5) 130*c*.
impact, P (1) 31*b*.
mineral sample, P (7) 175*a*.
for particles, hard to pulverize, P (7) 178*f*.
Cryolite, -Al_2O_3 melts, electrolysis, anodic effect during (9) 226*i*.
crystalline, of high bulk density, P (1) 34*g*.
crystal structure, refinement (3) 91*i*.
Crystal chemistry, of $CaSiO_3$, $SrSiO_3$, and $BaSiO_3$ (5) 136*c*.
high-temp., orthoferrosilite (7) 184*b*.
of liberite, Li_2BeSiO_4, and Li_2BeGeO_4 (5) 136*a*.
of $MgMPO_4.6H_2O$, (M = K,Rb,Cs,Tl,NH_4), struvite analogs (5) 136*d*.
of nonmetallic materials, B (9) 244*a*.
of nuclear waste (1) 29*f*.
of oxides, tetrahedral (9) 228*j*.
of portland cement clinkers, constituents (5) 98*g*.
of scheelite solid solutions, in systems $SrMO_4$-$Eu_2(MO_4)_3$ and $EuMO_4$-$Eu_2MO_4)_3$ (M = Mo, W) (5) 136*b*.
of silicate-apatites, nitrogenated (9) 227*h*.
of Si_3N_4 solid solutions, beta-, containing metal oxides (9) 228*i*.
of Sm bromides (9) 237*i*.
Crystalline materials, bodies, of complex geometries, P (7) 172*b*.
growing from melt, P (3) 76*a*; growing from melt, apparatus for, P (9) 221*g*.
fracturing, P (1) 28*c*.
vitro-, thermal stability, temp.-viscosity factors in controlling (9) 203*c*.
Crystallinity, phases, detection limits by X-ray diffraction (3) 85*f*.
Crystallites, orientation, in inorganic polycrystalline solids, P (3) 79*i*.
Crystallization, re-, of Ba ferrite (1) 45*c*.
of metamict thorite (5) 138*j*.
from solution, in Li_2O-MoO_3 melt (3) 85*e*.
of UO_2 (1) 29*i*.
Crystals, carrier lifetime, determination, P (3) 76*g*.
cubic, Anderson-Grueneisen parameter for (7) 179*e*.
optical orientation of excitons in (5) 143*c*.
-field effects, in Cr-Fe spinel (5) 136*e*.
gamma-quanta from, in case of hyperfine splitting (5) 139*a*.
grains, of Ni-Zn ferrite, shape change (9) 238*h*.
growing, apparatus, P (1) 28*f*.
from hydrothermal solutions, apparatus for, P (9) 219*b*.
P (1) 29*a*; P (1) 31*e*; P (1) 31*i*; P (5) 127*b*; P (7) 172*h*.
growth, B (7) 189*e*.
combining float zone with water-cooled rf container methods, P (5) 127*b*.
of Group II-IV-V_2 compounds (7) 179*j*.
from high-temp. solutions, B (5) 148*a*.
hydrothermal (9) 227*a*.
isothermal, method and apparatus, P (9) 219*e*.
from melt, crucible and heater assembly for, P (9) 219*e*.
process and apparatus, P (3) 77*b*.
ionic, structural defects and atom diffusion in, B (9) 243*h*.
lattice, anisotropy, effect on optical transmittance of PZT systems (9) 217*h*.
lattice images, of dislocations in $Ba_2Bi_4Ti_5O_{18}$ (9) 234*h*.
micro-, fluctuations of growth rate in (9) 232*d*.
nematic liquid, behavior in rotating magnetic field (1) 35*d*.
rotatable growing, weighing cell apparatus for diameter control, P (5) 128*j*.
seed, accelerating and decelerating rotation rate, P (5) 127*j*.
single, growth from solution, study by holographic method (1) 44*a*.
homogeneous, of semiconductor solid solutions (5) 140*b*.
P (1) 29*a*; P (7) 173*h*.
working, forming and finishing, P (9) 220*f*.
size, and composition, effect on absorption spectra in photochromic glasses (3) 56*e*.
size distribution, automatic control, P (1) 31*b*.
spinel, nonstoichiometric, P (5) 122*e*.
structure, of alite and C_3S (3) 85*j*.
of Ca sulfates (5) 142*j*.
of carpholite $MnAl_2Si_2O_6(OH)_4$ (9) 228*a*.
of cryolite, refinement (3) 91*i*.
of $CuTeO_3$ (7) 182*a*.
of defective spinel, $MgO.3Al_2O_3$ (9) 228*b*.
of HfCl (1) 46*j*.
and isotopic substitution (1) 41*b*.
of $La_2Ti_2O_7$ (5) 136*f*.
of Li Al chromites (7) 180*i*.
of monoclinic acid Na, Ca-orthosilicate (9) 228*c*.
of mroseite (3) 85*b*.
of natural and synthetic Ca sulfates (9) 195*e*.
of $Na_2(UO_2)SiO_4$ (9) 228*d*.
of $Na_3AlBeSi_2O_8$ (9) 228*d*.
of $Na_4Be_2O_5$ (7) 180*b*.
of $Ni_3(BO_3)2$ (3) 85*b*.
of Sc_2GeO_5 (9) 228*d*.
of spinel ferrites (5) 140*h*.
of $Sr_2Nb_2O_7$ (5) 136*g*.
of stellerite; of $YbFe_2O_4$ (5) 136*h*.
of thoreaulite $SnTa_2O_6$ (9) 228*f*.
and twinning of $RbAlSiO_4$ (9) 228*e*.
twisted nematic liquid, optical properties (1) 42*j*.
of Y polonide (5) 136*i*.
of Y_2O_3, effect of additives (3) 86*d*.
surfaces, properties, B (3) 94*d*.
Crystals *(continued)*
verneuil, apparatus for production, P (3) 76*a*.
Currents, controlling device, including VO_2, P (1) 28*f*.
ETSC, high-electric-field, asymmetric two-site hopping model for in SiO_2 films (1) 24*b*.
thermally stimulated, in dielectrics (1) 47*a*.

Damping, mechanical, of Si-As-chalcogenide glasses (1) 9*e*.
Dawsonite, synthetic, thermodynamic data (9) 241*e*.
Decomposition, of ilmenite, in KOH-H_2O solutions (7) 180*c*.
of $MgCO_3$ (3) 82*j*.
of Ni carbonate, changes in physicochemical properties (1) 35*h*.
of oceanic materials, refractory suspended (9) 221*a*.
thermal, of Al_2O_3-Si_3N_4 (3) 93*a*.
of Ca aluminate hydrates (3) 93*a*.
kinetics (9) 234*h*.
of $MgCO_3$, exothermic processes in (9) 231*g*.
of $Mg(OH)_2$ with water vapor pressure (3) 93*i*.
of $SmCo_{5+x}$ (1) 47*e*.
Decoration, of ceramic articles, P (1) 24*b*.
of ceramic workpieces, P (3) 72*e*.
curable systems, for glass or metal containers, P (1) 14*b*.
decal, on glass, P (9) 204*b*.
decalcomania, adhesive transfer, P (1) 23*j*.
apparatus for applying, P (5) 124*f*.
automatic transfer method and apparatus, P (9) 216*h*.
for biscuit-fired ceramics, P (5) 124*i*.
for heat-resistant objects, P (9) 216*i*.
including design layer free of glass, P (1) 24*a*.
offset transfer, P (9) 216*c*.
overglaze ceramic, P (7) 170*h*.
P (1) 24*b*; P (9) 216*i*.
pressure-sensitive transfer sheet, P (1) 23*j*.
of glass, P (5) 112*c*.
of glassware, and ceramic, P (9) 204*b*.
pattern application, device, P (9) 216*c*.
printing, multicolor equipment, Dekram (9) 214*j*; multicolor transfer machines (9) 215*f*.
stencil, machine for, P (9) 216*b*.
printing system, P (1) 24*g*.
screen printing, indirect, for ceramic products (9) 214*g*.
machine, P (1) 24*g*; machine, P (1) 24*h*.
shop, automation in (9) 214*a*.
silk-screen printing, mask for, P (7) 173*a*.
surface printer, hollow body, P (7) 170*f*.
Defects, centers, in Si, optical, photoconductivity, and Hall coeff. studies (5) 137*b*.
in chalcopyrite (5) 137*d*.
detection, P (9) 224*c*.
microscopic, in CdTe (1) 42*g*.
point, in NiO, effect of Cr on structure (7) 180*i*.
Schottky, in alkali halides (7) 184*b*.
shape, effect on strength of ceramics (3) 86*g*.
sizes, prediction from acoustic emission measurements (9) 237*c*.
structure, of NiO-Cr_2O_3 solid solutions (1) 45*h*.
Deformation, abrasive surface, of sapphire (5) 135*e*.
elastic, spontaneous, of plastic clay bodies (3) 71*h*.
electroplastic, kinetics, and effects of cycling (1) 41*c*.
study under nonisothermal loading (1) 32*f*.
high-temp., of polycrystalline beta-Al_2O_3 (1) 40*b*.
inelastic, of rock castings (1) 18*d*.
of MgO, polycrystalline (7) 180*d*.
plastic, of alpha-SiC (5) 143*j*.
of GaAs single crystals (3) 92*i*.
Degassing, rate, calculation using DTG curves (1) 35*e*.
Dehydration, of kaolins, kinetics (9) 234*c*.
of phosphogypsum (5) 98*i*.
thermal, of synthetic Na aluminosilicate hydrogel, kinetics (7) 183*i*.
Dehydroxylation, of clay, and minerals, thermogravimetry of kinetic parameters (3) 93*f*.
Delay lines, glass, ultrasonic, P (1) 15*h*.
ultrasonic, glass for, heat-treatment to reduce variation in delay time, P (5) 113*c*; glass for, P (7) 162*a*; glass system for, P (9) 205*f*.
Densification, of $BaTiO_3$, effect of LiF and MgO (5) 125*a*.
of B hexaferrite, effect of composition and heterogeneity (1) 26*i*.
of filaments, during hot-pressing (3) 85*h*.
of SiC, sinterable, effect of coarse grains and fibers (3) 64*g*.
Density, of Al_2O_3, amorphous (3) 56*j*.
electron momentum, in solids, methods for determination (9) 223*h*.
of Ge-As-Se, measurement (1) 5*j*.
of glass, borosilicate (3) 59*e*; borosilicate, relation to structure (9) 199*i*.
Cu-As-Se (1) 6*f*.
melts (5) 108*f*.
profiles, dopant, calculating from capacitance-voltage date (3) 72*a*.
of refractories, green (9) 208*i*.
of Si_3N_4 (9) 212*a*.
of soils, by nuclear equipment (7) 175*i*.
surface flaw, of brittle materials, statistical determination (9) 239*h*.
Dental ceramics, alloy, P (5) 124*i*.
artificial teeth, P (3) 72*d*.
bridge, and crown, porcelain-covered, P (1) 24*f*.
cement, composition, P (9) 216*j*.
cements, based on ion leachable glasses (3) 71*b*.
inorganic, calorimetric studies (9) 214*e*.

Dental ceramics *(continued)*
porcelain, and white gold alloy, for dental restoration, P (9) 216*j*.
Deposition, agent, depositing on surface of semiconductor substrates, P (7) 173*e*.
apparatus, high vacuum, P (3) 76*d*.
chemical vapor, on hot "front" (7) 170*a*.
chemical vapor phase, in HfC (3) 85*a*.
electro-, of composite coatings, P (1) 31*f*; of composite coating with Cr, P (7) 154*b*.
of metals, B (3) 94*g*.
electrostatically, and magnetically responsive particulate matter (7) 172*i*.
film, apparatus for, P (1) 30*j*.
of metal, on substrate surface, P (1) 28*j*.
of particulate matter, electrostatically and magnetically responsive, on conductive surface, P (7) 172*i*.
physical vapor, P (3) 77*a*.
plasma, of thin layers on substrates, P (1) 29*d*.
thin-film, using segmented plasma, P (1) 29*i*.
vapor, apparatus, P (5) 128*i*.
glow discharge-tumbling apparatus, P (5) 127*b*.
halogen, of chalcogenide crystals (9) 232*g*.
nozzle, P (7) 175*c*.
P (5) 128*i*.
vapor phase, accurate control during, P (5) 126*f*.
Design, data, for engineering ceramics (9) 242*a*.
industrial, esthetic values in (9) 193*c*.
Detectors, crack, P (7) 177*b*.
inorganic vitreous, P (7) 173*a*.
photodiode, ion-implanted, in epitaxial (Ga_xIn_{1-x})As (5) 107*b*.
pyroelectric, matrix structured elements, P (7) 173*b*.
semiconductor, n- and p-type, measurement of gamma-dose rates by (1) 42*b*.
Deuterium, migration, in borosilicate glass (9) 200*i*.
oxide, high pressure PVT properties (7) 182*a*.
Diamonds, abrasive tools, cutting, grinding and lapping ceramics (9) 193*b*.
aggregates, polycrystalline, of predetermined shape, P (7) 167*i*.
concentration, determination for grinding glass (7) 149*e*.
hardness, and gem diamond "substitutes" (7) 149*f*.
joining, to metal, P (7) 149*h*.
metal-coated, in synthetic resin-bonded grinding wheels, P (1) 1*f*.
metal coating, P (9) 193*h*.
-metallic materials, P (3) 49*d*.
particles, coating, P (9) 193*h*.
polished surfaces, electron microscopy (7) 149*d*.
polishing, new role in R & D (1) 1*a*.
semiconducting, natural, determination of B in (9) 217*b*.
synthetic, P (1) 1*g*.
strength, effect of temp. and matrix (3) 49*b*.
tools, for machining steatite, TiO_2, and porous ceramic workpieces (1) 1*b*; in machining glass fiber-reinforced plastics (9) 193*b*.
in mfg. hard and Al_2O_3 porcelain (9) 193*c*.
in polishing tapered ground-glass joints (3) 59*i*.
Dielectrics, anisotropy, measurement with microwave open resonator (9) 223*f*.
audiofrequency, absorption in porous multicrystalline BaO (5) 124*e*.
ceramic, body, P (3) 76*c*.
ceramic structures, P (9) 219*c*.
constant, of alpha-quartz, sapphire, MgF_2, and MgO (9) 234*j*.
of Fe_2O_3-PbO-SiO_2 system (9) 229*e*.
of $LiNbO_3$ crystals (9) 230*j*.
of PZT ferroelectric ceramics (9) 231*a*.
of quartz (7) 180*g*.
strain-dependent, convolution of surface waves in material with (5) 136*i*.
of vitreous SiO_2, effect of OH^- (9) 230*j*.
dispersions, of synthetic faujasites (7) 180*f*.
films, low loss, electron diffraction study (3) 73*h*.
measurement of trap density and energy distribution in, P (7) 177*d*.
trap density in, measurement (5) 125*f*.
isolation, to provide backside collector contact and scribing yield, P (3) 76*i*.
loss, of glass, mixed alkali-alkaline earth metaphosphate (1) 9*b*; of glass, mixed alkali borate (1) 9*c*.
low-loss, Ca aluminosilicate ceramics as (1) 35*b*.
materials, attenuation constant, freq. dependence (1) 26*b*.
with high permittivity, P (1) 28*c*.
low loss, devices using, P (5) 127*d*.
testing for voids, P (7) 177*e*.
microwave materials, in Li_2O-TiO_2-Al_2O_3 system (3) 74*e*.
multi-, layers, controlling thickness with prismatic modulator (1) 26*h*.
permittivity, and breakdown strength of MoO_3 films (3) 72*h*.
properties, of alkaline earth niobates, single crystals (5) 137*i*.
of Al_2O_3 single crystals, pure and doped (1) 36*i*.
of As-Ge-Se glass (3) 56*h*.
of $BaTiO_3$ (7) 170*d*.
of beta-eucryptite (9) 229*g*.
of montmorillonite (5) 137*e*.
of NaCl, KCl, and KBr single crystals (9) 231*c*.
of pyrophyllite, as function of water vapor pressure (9) 229*g*.
Dielectrics properties *(continued)*
and varistor, of phosphate glasses (7) 160*a*.
relaxation, in phosphate glass (3) 56*j*.
solid, and liquid, ionic mobilities at high fields in (1) 47*e*.
solid transparent, propagation of laser radiation absorption waves in (3) 74*i*.
studies, of $BaGeO_3$ (3) 75*i*.
thin films, sputtered, P (9) 220*c*.
TSPC in (1) 47*a*.
Diffractometers, X-ray, to determine phase composition of cement clinker (1) 3*f*.
Diffusion, Ag, in CdSe, ultrasonic study (3) 75*h*.
atom, in ionic crystals, B (9) 243*h*.
in B, semiconductor, of impurities (5) 137*h*.
boron, into Si (1) 40*g*.
Co, in GaAs, effect of complexing (5) 137*b*.
coeff., in adsorbents with biporous structure (3) 86*a*.
exponentially dependent on concentration, tracer concentration gradients for (9) 241*i*.
effect, on electrical and optical properties of As_2Se_3 (9) 229*i*.
of ferrous ion, in AgCl (5) 137*h*.
fission product, in irradiated coated particles (7) 174*d*.
in glass, oxide, based on electric conduction and dielectric relaxation (3) 55*h*.
inter-, in CaF_2-YF_3 system (1) 40*d*.
in glass (1) 9*b*.
of Na and K ions in glass, Nernst-Planck equation (9) 199*d*.
in semiconducting oxide solid solutions (1) 40*f*.
ionic, in glasses (3) 57*h*.
in oxide glasses, B (3) 94*g*.
kinetics, nonisothermal, and use in thermal analysis (3) 80*h*.
magnetization, in Heisenberg ferromagnetic substance (1) 41*j*.
oxygen, in MgO-Al_2O_3 spinel (5) 143*g*.
in ZnO, study by single-spectrum proton activation (7) 179*g*.
self-, in bcc FeSi, effect of ferromagnetic transition (5) 140*j*.
of O in $MgAl_2O_4$ (7) 186*h*.
in Si, of fast impurities (5) 137*g*.
thermal, of Al_2O_3-Cr_2O_3 solid solutions (1) 47*f*.
capacity, and conductivity coeff. of solids, determination (1) 32*a*.
of Mn_2(Cr)Sb monocrystal (1) 47*f*.
of refractory oxides, arc-imaging measurement (1) 32*c*.
of wustite (1) 47*g*.
of Zn, in InP (3) 73*a*.
Diffusivity, thermal, of Fe_2TiO_5, effect of microcracking (7) 180*j*.
of TiO_2 (3) 93*b*.
Dilatometry, of cement, refractory aluminous (7) 150*i*.
Dinnerware, bone china, P (9) 242*b*.
chinaware, kaolin for (1) 22*i*.
cups, attaching handles, P (7) 170*e*.
clay-glazed, firing (7) 169*c*.
dishes, automatic shaping device for, P (9) 216*a*.
decoration, and design (3) 71*b*.
glass, colored, P (9) 204*i*.
porcelain, design, cooperation between college and industry (1) 22*e*; design and rationalization (1) 23*a*.
Diodes, avalanche reference, low-freq. noise in, temp. dependence (1) 27*d*.
GaAs IMPATT, high-efficiency, P (1) 28*d*.
GaAsP, capacitance and thermally stimulated capacitance (1) 26*c*.
light-emitting, by ion implantation (7) 171*c*.
Ge, and Si pin, detecting defects and impurities in (1) 32*c*.
laser, epitaxial growth (1) 27*i*.
photo-, planar Ge (5) 125*h*.
punch-through, in self-oscillating mixers (1) 27*f*.
Schottky barrier, chip-type planar, from GaAs (1) 24*i*.
Si Read, multiplication factors and breakdown voltages (1) 26*i*.
variable capacitance, using glassy amorphous material as active layer, P (3) 77*b*.
Diopside, synthetic, P (5) 135*d*.
Dislocation, accumulation, near crystal surface (9) 226*e*.
Dislocations, in $GaAs_{1-x}P_x$ (9) 217*e*.
in Gd Ga garnet (9) 229*b*.
mobility, in dislocation-free Ge (5) 142*g*.
structure, analysis of Ga(As,P) by etching (5) 142*c*.
Dispersion, convective, and diffusion mechanisms, contribution to dispersion of particulates (7) 174*g*.
distribution coeff., effect of growth conditions and level of alloying (5) 137*g*.
Dolomite, burned, P (9) 212*d*.
Ca in, and Mg, determination using Palladiazo as indicator (1) 33*d*.
deposits, in Argentina (3) 82*g*.
firing, thermal treatment and furnace for, P (7) 153*d*.
for glass industry (9) 201*g*.
granular, thermal treatment, P (9) 197*e*.
lump, hard-to-sinter, O for (1) 20*c*.
optically active vibrations, and effective charges (5) 143*e*.
rotary kilns for, dimensional design (5) 99*c*.
Dosimetry, glass for, Mn-activated phosphate, P (1) 14*i*.
Dryers, air, selection (9) 224*f*.
ceramic, P (1) 33*j*.
for enamel slip, on pipe surface, P (1) 33*i*.
for molds, investment casting shell, P (9) 224*j*.
P (9) 224*h*.
for particles, P (3) 79*h*.
powder, P (7) 175*b*.
Dryers *(continued)*
with recirculating heating, thermodynamic analysis (7) 177*g*.
rotating-shelf, convection-type, operation and control (7) 177*c*.
spray, atomizer disk for use in, P (1) 31*b*.
P (1) 34*c*.
particle trajectory in (9) 221*f*.
waste heat utilization for (1) 33*h*.
tunnel, vs chamber (7) 177*j*.
Drying, aggregate, in fluidized bed (5) 97*g*.
ceramic material, during extrusion from press, P (1) 31*i*.
ceramic tape, P (9) 224*h*.
chamber, P (1) 34*a*.
clay blocks, and brick planks, avoiding distortion (3) 62*e*.
glass fibers, by radiation (9) 202*i*.
green bodies (5) 123*e*.
$MgCO_3$ (3) 82*j*.
microwaves for (3) 81*e*.
pre-, molded ceramic articles rapidly, P (7) 178*a*.
properties, of clay materials (1) 15*c*.
radio waves for (3) 81*f*.
refractory lining, P (7) 167*e*.
sequence batch, P (1) 31*d*.
spray, to prepare hollow, largely spherical particles, P (9) 222*c*.
of suspensions, P (1) 31*e*.
structural ceramics, kinetics (9) 206*f*.
time, reducing by design of kiln setting (5) 133*d*.
Dust, analyzer for, particle size distribution, P (3) 81*f*.
collection, chain curtain for (5) 129*g*.
from exhaust gases of rotary kilns, utilization (7) 153*f*.
control, during natural graphite refining and pulverizing (1) 30*f*; during discharge of materials into hoppers, P (3) 79*d*.
cyclone collectors, improved (1) 30*h*.
emissions, apparatus for controlling, P (7) 175*e*.
extraction, from bulk material handling installations, P (3) 79*e*.
flue, cement kiln, treatment, P (5) 102*g*.
monitor, P (1) 33*j*.
particles, in atm, apparatus for determining, P (7) 176*j*.
counting and assessing size, P (7) 177*b*.
removal, from clinker cooling exhaust air at cement plant (3) 53*i*.
Dysprosium, dihydride, antiferromagnetic transition in, heat capacity studies (1) 35*j*.
$Dy(Fe_xAl_{1-x})_2$, Laves phase compounds, magnetic studies (3) 89*b*.
$DyFe_{0.998}Co_{0.002}O_3$, crystals, magnetic properties of NMR during spin-reorientation transition in (7) 183*f*.
$DyFe_3$, magnetic properties (1) 41*h*.
ion, in YAG and DAG lattices (5) 140*g*.

Earthenware, article, coating method and apparatus, P (7) 170*g*.
articles, selectively coating, P (9) 216*d*.
glazed, and porcelain, production technology, B (7) 192*c*.
Education, American Electroplaters Society, for all American finishing organizations (9) 242*g*.
ceramic art, University of Minnesota, Duluth (9) 193*b*.
Elasticity, of Al_2O_3, amorphous (3) 56*j*.
constants, of HgSe (5) 138*d*.
in isotropic silicate glasses, determination by Brillouin scattering (7) 155*i*.
of $LiNbO_3$ crystals (9) 230*j*.
and measurement, B (5) 148*d*.
of $Pb_5Ge_3O_{11}$ (5) 138*d*.
of ZnSe (3) 86*j*.
of Zr silicate (7) 181*i*.
of $(Ti_{1-x}V_x)_2O_3$ at low temp. (7) 181*j*.
elasticoviscous properties, of deflocculated china clay suspensions (1) 38*e*.
ferro-, behavior in $Ba_2Ge_2TiO_8$ (9) 232*b*.
of fluids, instrument for measuring, P (5) 132*b*.
moduli, of alkali glass (1) 7*d*.
of brickwork, in lateral bending (5) 115*g*.
and mechanical Q, of hard materials, measurement by ultrasonic system (3) 79*h*.
relation to porosity of ceramic body (1) 23*e*.
of SiC (3) 86*j*.
of V, Nb, and Ta single crystals, effect of H and O (3) 86*g*.
photo-, effect in piezoelectric semiconductor, ZnO (9) 218*e*.
properties, of ceramics, effects of inhomogeneous porosity (1) 38*c*.
of Eu_2O_3-HfO_2, effects of temp. and microstructure (5) 138*a*.
of glass, effect of structural relaxation (9) 200*e*.
of K_2O-SrO-SiO_2 glasses (3) 56*h*.
of Lu_2O_3, polycrystalline cubic, porosity dependence (3) 90*g*.
of NiO (7) 181*a*.
of phosphate glasses (3) 56*i*.
and photoelastic, of $Gd_2(MoO_4)_3$ crystals (9) 230*i*.
of quartz glass, acoustic studies (5) 104*f*.
of structural clay products (9) 207*c*.
visco-, dynamic, of glasses in systems As-S and As-Se (1) 7*c*.
properties of bituminous concretes (5) 100*f*.
in solids, B (5) 147*h*.
Young's modulus, of glass, calculation from chemical composition and density (1) 5*i*.
of Si_3N_4 fibers (3) 93*j*.
of ZrC and NbC, effect of porosity (9) 230*d*.
Elastic materials, elastomers, glass fiber-reinforced, P (1) 14*j*.

Electrical properties, of AlF_3, and MgF_2 thin films, correlation with Rutherford scattering and (alpha,X) reactions (1) 45*j*.
of Al_2O_3 (5) 140*e*.
of As_2Se_3 (9) 229*i*.
of Au films, ultrathin, during and after growth on glass (9) 217*b*.
in CdS, single crystals, effects of uniaxial stress (5) 138*b*.
of cement pastes (9) 194*i*.
of ceramics, effect of porosity (3) 73*d*.
of $Cr_xV_{1-x}O_{2-x}F_x$ (7) 187*e*.
of $CuGaS_2$ (7) 181*f*.
effect, of impurity associations in NaCl crystals (1) 38*i*.
of Fe-NiS ceramics (7) 181*b*.
of FeO (7) 181*e*.
of GaTe (5) 125*h*.
of Ge, p-type, effect of dislocations (1) 37*i*.
of Ge-Si-B alloys, hot-pressed (1) 25*d*.
of Ge_xTe_{1-x}, films (9) 240*b*.
of glass, binary V (3) 57*a*.
Fe silicate (5) 106*a*.
oxychalcogenide, As_2Se_3-based (1) 7*f*.
phosphate (1) 7*g*; phosphate (5) 106*e*.
pseudobinary fluorophosphate (5) 106*f*.
review (3) 57*b*.
V binary, correlation with microstructural aspects (3) 58*c*.
of In_2O_3 films (5) 143*b*.
measurements, of current flow in superconducting Pb films (3) 74*c*.
of metal oxide-metal, structure, role of interfaces in determination (7) 186*g*.
of metal-SiO_2-Si structures, under mechanical stress (7) 170*i*.
of NiO (7) 181*a*.
of oxides, of Ir, Ti, and Ca, semiconducting (5) 110*b*.
parameters, of p-InSb, effect of heat treatment (5) 137*h*.
of rare earth germanates (3) 92*d*.
of sand, dry and humid (9) 231*d*.
of semiconductor crystals, contact between (7) 171*a*.
of SiC, effects of sintering conditions (5) 138*i*.
material, effect of heat treatment (7) 164*f*.
thermo-, power, of $A^IB^{III}C_2^{VI}$ and $A^IB^VC_2^{VI}$ (1) 38*g*; power, of $Ag_6I_4WO_4$ (5) 125*g*.
of $(Ti_xV_{1-x})_2O_3$ (5) 138*g*.
of UGa_2 (1) 41*g*.
of $VO_{2-x}Fx$ (7) 183*f*.
of $xLaFeO_3$-(1-x)$SrMoO_3$, solid solution system (7) 181*d*.
of YIG, thin films (9) 217*a*.
of ZnO, low-temp. (7) 183*d*.
Electricity, components, with enamel coating, P (3) 55*a*.
field, effect on crystal growth in anatase powders (3) 84*a*.
high microwave, effect on bulk amorphous semiconductors (1) 39*j*.
of rare earth orthovanadates, measurement (9) 235*b*.
modulation, of multiple interference in GaSe crystals (5) 138*f*.
polarization, of GeSe films (5) 125*c*.
potential, in ion exchange theory of glass electrode (9) 202*i*.
static field, effect on neutron diffraction by lattice planes of KH_2PO_4 (1) 38*a*.
Electrochemistry, metallurgical, B (7) 191*i*.
Electrodes, carbon, coating for, P (5) 121*e*.
or graphite arc furnace, coating, P (7) 167*g*.
long-life porous, P (3) 69*j*.
effect, in measurement of ionic conductivity (3) 87*d*.
glass, ion exchange theory, electric potential in (9) 202*i*.
membranes, pH, dissociation mechanism for (7) 157*j*.
reinforced structure, P (3) 62*d*.
glass microbulb (5) 106*e*.
graphite, overvoltage in Cl discharge on, in AgCl-KCl molten mixture (3) 90*e*.
of particles and binding agent, P (9) 213*j*.
porosity, microscopy measurement (1) 32*g*.
protection, P (9) 214*c*.
metal, reaction with glass (9) 200*e*.
micro-, glass, probes for routine pH measurements (9) 200*f*.
TiO_2, n-type, chemical vapor deposition and use in electrolysis of H_2O (1) 27*h*.
with transition metal oxides, P (1) 28*i*.
V-group-metal, electronic conductivity and polarization effects (9) 231*a*.
WC, Ag-coated, P (7) 173*h*.
Electrolysis, of cryolite-Al_2O_3 melts, anodic effect during (9) 226*i*.
Electrolytes, action, on bound water of clay suspensions (1) 22*d*.
beta Al_2O_3, pure, factors influencing lifetime (1) 39*a*.
Li, review (9) 232*h*.
Na-beta-Al_2O_3, solid, P (9) 220*a*.
solid, containing Al_2O_3, TiO_2 and ZrO_2, P (7) 168*i*.
polycrystalline, analyzing ac behavior (7) 176*f*.
$ThO_2(Y_2O_3)$ and $ZrO_2(CaO)$, partial electronic conductivity in (3) 90*g*.
thin-film solid structures, P (1) 29*j*.
ThO_2-Y_2O_3, electronic conductivity and polarization effects (9) 231*a*.
Electromotive force, development, in metal-dielectric-semiconductor system (1) 36*h*.
measurements, in systems of V and Ta (9) 231*d*.
method, for kinetics of Na metasilicate-sand reaction (1) 9*a*.
thermal, of LaS and alloy $LaS_{1.47}$ (5) 138*h*.
of melts in Cu-S, Cu-Se, and Cu-Te systems (1) 47*h*.
Electron diffraction, of dielectric films, low loss (3) 73*h*.
in electromagnetic field, by dielectric crystals (1) 32*i*.
Electron diffraction *(continued)*
line profile, Fourier analysis (1) 42*i*.
low-energy patterns, calculation (1) 38*i*.
rdf analysis, of As_2Se_3, As_2Se_2Te, As_2SeTe_2, and As_2Te_3 films (1) 25*e*.
Electronic equipment, acoustic surface-wave, $LiNbO_3$ piezoelectric substrate for, P (9) 219*c*.
using monocrystalline Bi Si oxide substrate, P (9) 219*a*.
Al-Al_2O_3-Al, thin film, memory switching in (7) 171*j*.
bistable positioner, comprising dimensionally bistable ferroelectric crystal, P (1) 28*b*.
calorific, panel-styled, P (3) 76*j*.
ceramic impedance, P (9) 219*d*.
condensors, nonconductive ceramic for, P (5) 127*i*.
data sensing, P (9) 219*e*.
electrical, containing nitroarylsiloxane dielectric fluid, P (1) 28*h*.
electrical connector, multicontact, for ceramic substrate, P (3) 76*i*.
electrical feedthrough, ultra-high-vacuum (9) 218*i*.
electron multiplier, and image intensifiers, P (5) 127*f*.
electron multiplier, P (3) 76*a*.
for epitaxial growth, liquid-phase, P (1) 27*j*.
for ferrite moldings, magnetized, P (9) 219*f*.
for green ceramic tape, bilayered, P (1) 27*j*.
monitors, neutronic flux, P (9) 221*d*.
for rogue gases (7) 174*h*.
precision balls, small, P (7) 173*i*.
Schottky barrier, high-voltage, P (1) 28*f*.
thin disklike workpieces, processing apparatus for, P (3) 77*b*.
thin-film, of doped VO material, P (1) 29*j*.
tunneling structures, Nb-Al-Al_xO_y, memory effect in (9) 235*e*.
vacuum holder, in epitaxial growth apparatus, P (1) 29*b*.
VO_2 film, direct ir measurements of filament transient temp. during switching in (7) 170*e*.
Electronics, ceramic compositions, P (1) 28*c*; P (9) 219*c*.
ceramic materials, technology, hot-pressing in (3) 73*e*.
ceramic-metal joint, P (1) 28*d*.
electroceramics, B (3) 94*f*.
gas discharge panel, with electrodes secured to flat insulating plates, P (5) 127*j*.
glass in (9) 217*e*.
green sheets, ceramic, elimination of dimensional changes in, P (9) 219*h*.
industry, analysis of products used in (7) 170*i*.
refractory materials in (9) 216*h*.
materials, synthesis, phase diagrams in (3) 75*i*.
metal-SiO_2-Si structures, electrical properties under mechanical stress (7) 170*i*.
micro-, microscopical surface measurements (1) 32*j*.
photomaking in, optical and dimensional-measurement problems with (7) 171*c*.
photo-, properties of high-resistivity GaAs:Cr (9) 237*d*.
positive resist layers, high-sensitivity, and mask formation process, P (5) 127*d*.
positive temp. coeff., materials, P (5) 128*a*.
properties, of As-Se alloys, liquid and solid (1) 7*i*.
photo-, of GaAs:O (9) 237*d*.
of semiconducting glasses (1) 8*a*.
significance for oxide catalysis (7) 186*i*.
of $Y_3Fe_5O_{12}$ (7) 180*c*.
sealing, glass for, P (5) 112*i*.
semibeads, electrically insulating vitreous (5) 125*i*.
Sr-based, for high-temp. use (7) 172*c*.
structure, of oxides of lanthanides (3) 87*g*.
of transition metal oxides (7) 182*f*.
tape, drying, P (9) 224*h*.
transport, in V_2O_3 (7) 183*j*.
vacuum gap, simple triggered, delay characteristics (3) 72*f*.
Electron probes, micro-, analysis of surface reduction of vitreous SiO_2 (7) 156*c*.
for quantitative chemical analysis of microparticles (5) 131*i*.
use in studying properties of ceramic ware (1) 33*h*.
microanalysis, for determination of alkali metals in glass (1) 6*g*.
quantitative, analysis of silicates using energy-dispersive X-ray spectrometry (9) 223*a*.
of system glaze-porcelain, intermediate layer in (5) 123*e*.
Electrons, capture into Na^+-related trapping sites in SiO_2 layer of MOS (9) 227*e*.
coherent bremsstrahlung by, in Si and Nb crystals (5) 136*a*.
d-, in V_2O_5 and MoO_3 (7) 180*f*.
drift velocity, in CdTe (3) 86*b*.
emission, of metals into insulators (5) 125*h*.
exo-, emission, relation to performance of abrasive grains (1) 1*c*; emission of ZnO (5) 139*j*.
from LiF powder (5) 139*b*.
fractography, of hexaborides of alkali and rare-earth metals (5) 138*h*.
in glass (9) 200*g*.
high energy, emission during mechanical treatment of alkali halides (1) 38*b*.
high-field capture, by Coulomb-attractive centers in SiO_2 (9) 232*h*.
hot, attenuation length measurements, criticism (3) 79*g*.
injection into SiO_2 (9) 236*i*.
mobility, in Cd_3As_2 (1) 38*a*.
in eptaxial Si (9) 231*i*.
and hole, in $Ga_{1-x}In_xAs$ (1) 38*j*.
-NMR, in thin ferromagnetic film (9) 231*i*.
-optical study, on montmorillonites (5) 138*i*.
Electrons *(continued)*
in oxides (7) 181*j*.
structure, of cations of orthosilicates (9) 231*a*.
of Ga, magnetoacoustic study (9) 234*g*.
transport, in SiO_2 films (9) 232*j*.
traps, in n-GaAs (9) 240*f*.
tunneling, effect of localized states in barrier on (5) 137*j*.
warm-up effect, on corkscrew instability in multivalley semiconductors (3) 73*b*.
Electrooptic properties, coeff., of ferroelectric $GdMoO_4$ (9) 241*f*.
Electrooptics, diffraction deflector (1) 32*h*.
Electrostatic processes, charging workpieces, for spray coating, P (5) 103*h*.
enameling, modern dry techniques (3) 54*d*.
P (5) 103*j*.
status report (3) 54*h*.
for enamel powder (5) 103*g*.
for enamels, powdered, practical experiences in (7) 154*h*.
interaction force, created double layer at interface (1) 25*h*.
for powders, comparison of systems (7) 154*d*.
dry ceramic, P (5) 103*j*.
properties of, apparatus for studying, P (7) 117*a*.
precipitators (5) 129*j*.
spray coating, powder, booth, P (5) 130*b*.
spraying, gun, for powder coating material, P (7) 175*h*.
Emerald, single crystals, V_2O_5 flux-growth, synthesis (9) 240*d*.
Emission, acoustic, to detect cracks in ceramic materials (9) 222*c*.
during cyclic loading of C-fiber-reinforced plastics (3) 63*f*.
in evaluation of dielectric breakdown in insulator materials (7) 170*j*.
measurements, for prediction of flaw sizes (9) 237*c*.
for monitoring structural integrity, B (3) 95*h*.
techniques applied to C fiber composites (7) 165*a*.
exo-, photostimulated electron, from thin film systems, kinetics (3) 89*i*.
from GaAs, (1,1,0) face (9) 231*d*.
radiation, during on state in chalcogenide threshold switch (9) 238*f*.
solid-to-solid, and band-to-band transitions (5) 145*j*.
thermal, for defect study in Y_2O_3 and TiO_2 (7) 188*d*.
thermionic, from cermets of refractory carbides (7) 166*b*.
characteristics of ZrC (7) 188*g*.
properties of refractory compounds (1) 47*b*.
thermoelectronic, to study point defects in refractory oxides (3) 93*g*.
Emitters, photo-, GaAs negative electron affinity, emission from (1,1,1,) faces (7) 172*e*.
thermionic, of La Sr vanadates, P (7) 173*j*.
Enameled ware, welding (3) 54*i*.
Enameled wares, architectural panels, assembly plant for (1) 4*e*.
Enameling, applicator, continuous-operation, P (5) 103*i*.
cast iron, adherence improved with deposits of Ni, Co, and Cu on (3) 54*j*.
electrolytic and electrochemical deposits of Ni, Co, and Cu on (5) 103*e*.
decoration, P (3) 55*d*.
direct-on, white, on standard and decarburized sheet steel (5) 103*e*.
electro-dip (9) 198*f*.
electrophoretic (1) 4*j*; (3) 54*e*. of ferrous articles, P (5) 103*i*.
and powder electrostatic, comparison (7) 154*c*.
rationalization and quality improvement by (3) 54*f*.
electrostatic, P (5) 103*j*.
energy conservation in (7) 154*g*.
furnaces, electric, improve Harvestore quality (3) 54*i*.
institute, Australasian, proceedings, B (5) 148*d*.
metal pipes, interior, P (9) 198*g*.
pretreating process, P (5) 104*c*.
sanitary ware edges, device for, P (1) 5*e*.
sheet metal, shaped aperture in, P (3) 55*c*.
spray, apparatus for electrostatically charging workpieces for, P (5) 103*h*.
steel (3) 54*a*. oxidation role during firing of enamel in (5) 102*j*.
P (3) 54*j*; P (3) 55*c*.
sheets, P (5) 104*a*.
for water boilers (3) 54*g*.
surface treatment (5) 103*j*.
vacuum (7) 154*h*.
water heater tank (3) 54*a*.
white, direct-on, prenickel-flashed sheet steel for (1) 4*g*.
Enameling industry, British (5) 103*a*.
pollution in, water (5) 102*i*.
testing, quality control, development, and standardization (5) 103*i*.
thermal testing in (7) 154*g*.
tooling in, Cr-Ni alloys for hangers for use in (7) 153*f*.
waste from, treatment (1) 5*b*.
Enameling metals, steel, electrolytic pretreatment (5) 103*f*.
fish-scale development as function of H_2 storage capacity (1) 4*j*.
preparation, P (3) 55*b*.
Enamels, acid-resistant, stability in presence of variable media (1) 4*h*.
Al, P (5) 103*h*.
for Al kitchenware, P (1) 5*e*.
application, methods and machines for (3) 54*c*.
cast parts, electrochemical and electrolytic deposition of Ni, Co, and Cu on (7) 153*i*.
catalytic, fat-oxidizing, P (9) 198*f*.
CeO_2 in (5) 103*b*.

Enamels *(continued)*
chemical resistance, determination (7) 153*h*.
for chemical ware, relation between structure and properties (7) 154*e*.
for corrosion protection, in building industry (9) 198*c*.
damage to, apparatus for detecting, P (5) 103*h*.
on electrical component (3) 55*a*.
electrical resistor coatings, substrates with, P (7) 154*e*.
firing, on decarburized steel, role of oxidation (1) 4*c*.
solubility of mineral mill additions during (1) 4*f*.
frits, for covering Al (9) 198*g*.
glassy, and crystallized, for chemical ware (1) 4*a*.
glaze, P (5) 103*j*.
ground coat, application, P (1) 5*f*.
heat-resistant, containing vermiculite, P (3) 55*b*.
interaction, with metal chloride melts (9) 198*i*.
-iron interface, effect of enamel composition (1) 4*g*.
on light metal alloys, corrosive undermining in Sb(III) chloride (1) 4*e*.
opacification, effect of fillers (1) 4*i*.
phase boundary, with steel (9) 198*j*.
powder, dry, electrostatic deposition, P (5) 103*j*.
by electrostatic spray techniques (5) 103*a*; electrostatic application (5) 103*g*.
powdered, application, P (3) 54*j*.
applying to metal, P (9) 198*d*.
properties, for electrostatic powder use (7) 154*e*.
thermodynamic aspects of improvement (5) 103*g*.
resistance, to mechanical damage, factors affecting (5) 102*i*; to mechanical damage (7) 154*a*.
to orthophosphoric acid (1) 4*b*.
self-cleaning (1) 4*d*. effect of porosity (9) 198*h*.
slip (3) 54*j*.
slips, drying on pipe surfaces, P (1) 33*i*.
tests, comparison (1) 4*d*.
smelting, air pollution during (7) 154*d*.
spectrographic analysis (3) 54*h*.
thermal expansion coeff. (9) 198*b*.
Ti (9) 197*i*. acid-resistant, effect of ceramming (9) 198*a*.
effect of F (5) 103*i*.
interaction with acid solutions, kinetics (9) 198*j*.
powder, for cast iron (9) 198*c*.
sorption properties, by gas chromatography (9) 197*j*.
toxic substances in, changes in regulations (1) 22*h*.
white, direct-on, adherence on decarburized steel (7) 154*b*.
Energy, activation, for reorientation of complexes in Cs halides (1) 35*b*.
in brick industry, test to save in firing (7) 177*f*.
of chemical bonds, of K_2O-SrO-SiO_2 glasses (3) 56*h*.
conservation, applied program (5) 132*d*.
in glass industry (3) 81*a*.
study of existing equipment and procedures (5) 133*h*.
tables of waste-heat content of exhaust gases (3) 81*b*.
controllers, in electrical heating (5) 133*f*.
cost, effect on future of structural ceramics (3) 81*d*.
crisis, engineer's perspective (5) 147*c*.
near and distant future (7) 189*f*.
dissociation, of YS (5) 147*a*.
efficient use, B (3) 94*f*.
electric, quality and quantity in process plants (9) 224*c*.
electrostatic, of columbite/ixiolite (9) 231*c*.
of formation, Gibbs, for clay minerals (3) 93*c*; Gibbs, of zircon, thorite, and phenacite (7) 182*h*.
fracture, in Al_2O_3, relation to grain size (3) 84*h*.
of refractories (9) 209*i*.
fracture surface, of magnesite refractories (9) 209*f*.
free, of formation, Gibbs, of SnO_2 (7) 187*a*.
Gibbs, estimation of functions (3) 87*j*.
free of formation, of Cr_2O_3 (1) 45*h*.
of FeF_2 and FeF_3 by EMF (5) 139*j*.
gap, of anodic oxide films on Bi (3) 72*h*.
Gibbs, empirical relation for immiscibility in liquid SiO_2-metal oxide systems (9) 200*h*.
level, structure of Ti_2O_3 (7) 186*a*.
magnetostatic, of spherical particles containing reverse spike domains (3) 89*b*.
recovery, from stacks (7) 177*e*.
requirements, for ceramics (3) 81*c*.
solar, flat plate collectors, performances compared (7) 177*i*.
surface, of ceramic materials (1) 47*d*.
waste heat use, from kilns and dryer plant (5) 133*g*.
Engineering, manpower (1) 48*d*.
Enthalpy, of BeF_2, by transposed-temp. drop calorimetry (7) 182*a*.
of formation, of compounds in system MgO-Al_2O_3-SiO_2 (5) 139*c*.
of Cs dimolybdate (5) 146*a*.
of $CuBr_2$ and CuBr (5) 139*c*.
of HfO_2 (5) 139*e*.
of Li_2O (7) 182*b*.
of Li_3N (5) 141*j*.
of mixing, liquid alkali fluoride mixtures (7) 182*a*.
in molten alkali fluoride mixtures (5) 139*d*.
of refractories (9) 209*b*.
of TiS_2, and V disilicide (1) 38*c*.
of U oxides, and sapphire to 1500 K by drop calorimetry (3) 77*h*.
of vaporization, of $HoN_{0.98}$ (5) 141*h*.
Entropy, of WC (7) 182*j*.
Equations, correlating, for heat and component transfer by free convection (3) 79*g*.
Nernst, impossible for analysis of equilibria of polycomponent minerals (9) 233*a*.
Equations *(continued)*
Nernst-Planck, applied to interdiffusion of Na and K ions in glass (9) 199*d*.
Erbium, $ErFeO_3$, spin configurations of Fe ions in (9) 234*a*.
$ErFe_3$, magnetic properties (1) 41*h*.
oxide, reaction with Ta_2O_5 (9) 238*j*.
Erosion, of materials, in rain at high velocities (3) 87*i*.
Etchants, for removing metals, from glass substrates, P (9) 204*e*.
selective, for thin-film devices, P (9) 220*b*.
Etching, chemical, of Pb chalcogenide, kinetics (9) 218*a*.
of ridge waveguides on $Bi_{12}GeO_{20}$ single crystals (9) 227*a*.
glass, B-Zn-Pb, in acetic and nitric acids (9) 201*d*.
ion, for mfg. etched structures in substrates, P (1) 28*h*.
for revealing dislocations, in polycrystalline Al_2O_3 (5) 131*i*.
of sheet steel, attack of reducing acids during (7) 153*g*.
Si_3N_4, with Al_2O_3 (9) 235*e*.
P (9) 213*h*.
sputter, selective removal of material by, P (7) 173*f*.
suppression of X radiation during, P (5) 128*g*.
Ettringite, chemical stability (5) 98*b*.
crystal structure, changes on dehydration (7) 150*d*.
Eucryptite, beta-, dielectric properties (9) 229*g*.
resistance to thermal shock (1) 45*g*.
ceramics, properties, effect of preliminary firing (1) 23*d*.
Europium, $Eu_{0.99}Gd_{0.01}S$, $Eu_{0.99}Gd_{0.01}Se$, and $Eu_{0.95}Gd_{0.05}Se$, electrical complex conductivity (3) 86*j*.
Eu^{3+}, in glasses, emission characteristics, temp. dependence (1) 12*i*.
in Na aluminosilicate glass, optical properties (3) 58*i*.
monochalcogenides, preparation (3) 91*a*.
oxide, ceramics from, properties (5) 119*c*.
-HfO_2, elastic properties, effect of temp. and microstructure (5) 138*a*.
sesquioxide, monoclinic, twinning in (9) 242*a*.
sulfide, films, oxidized, structure and optical properties (3) 75*f*.
high-vacuum evaporated, epitaxial growth on mica (7) 170*j*.
thin films, preparation and study (3) 74*f*.
Excitons, in cubic crystals, optical orientation (5) 143*c*.
Expansion, -collapse characteristics, of chlorite-montmorillonite (9) 231*i*.
linear, of Ba mica/Al_2O_3 composites (1) 20*f*.
moisture, of crystalline and amorphous phases (1) 9*j*.
of structural ceramics (3) 63*c*.
of whiteware bodies (5) 123*h*.
of perlite (5) 142*a*.
pressures, measuring (5) 132*a*.
thermal, absolute, of TiO_2-SiO_2 glass, by ultrasonic method (3) 56*g*.
of alkali halides (7) 188*e*.
of aluminosilicate and Dinas refractories for blast furnaces (5) 121*d*.
anomaly of U_3O_8 (1) 30*a*.
automatic machine (7) 176*d*.
of beta-eucryptite solid solutions (3) 93*b*.
of B_2O_3 glass (1) 12*c*.
coeff. of enamel coating (9) 198*b*.
of corundum structure Ti_2O_3 and V_2O_3 (7) 188*e*.
of glass, by measurement of birefringence in seals (5) 105*a*.
match between Mo (TZM alloy) and oxides of perovskite and spinel types (5) 103*c*.
of Mg_2Si, X-ray characteristic temp. and coeff. (5) 147*h*.
of Na trisilicate glass, effect of H_2O (9) 201*e*.
of oxide refractories (1) 20*g*.
of Pb glasses (5) 110*h*.
of single crystal quartz (9) 241*d*.
of Si_3N_4 and Si oxynitride (7) 188*f*.
by X-ray diffraction, for MgO and $MgAl_2O_4$ (7) 176*g*.
Extruders, screw, for ceramic materials, P (9) 222*c*.
transport phenomena of plastic ceramic masses in (9) 221*d*.
Extrusion, apparatus, for forming thin-walled honeycomb structures, P (1) 31*f*.
augering, with big bore (1) 30*d*.
dies, assembly, P (1) 31*g*.
high-temp., high-pressure assembly, P (1) 31*j*.
tile, case assembly with WC inserts for, P (5) 124*j*.
hot, for fast drying (5) 129*f*.
of molten steel, P (7) 167*h*.
multilayer, P (7) 175*a*.

Faraday effect, rotation, in $Ce(PO_3)_3$ glass at liquid-He temp. (7) 157*a*.
of single crystal of Gd Fe garnet (7) 182*f*.
Fatigue, behavior, of glass-fabric-reinforced polyester resin (1) 8*f*.
resistance, of Li aluminosilicate glass-ceramics (3) 57*c*.
of Se layers (1) 37*c*.
static, crack growth in glass as interpretation of (7) 155*e*.
of domestic soda-lime glass (7) 159*f*.
of glass (7) 159*f*; in glass (9) 203*h*.
limit, of glass (5) 110*c*.
thermal, of coated superalloys (5) 103*e*.
of hot-pressed Si_3N_4 (7) 166*a*.
of Si_3N_4, failure prediction (3) 87*c*.
Faujasite, formation, from preheated mixture of Shirasu-Na_2O (9) 232*f*.
synthetic, conductivity and dielectric dispersions (7) 180*f*.
Feeding apparatus, raw material, to preheater for kiln, P (9) 197*c*.
Feldspar, Belogorsk, as raw material in porcelain production (3) 70*j*.
K-rich, Bisembaev deposit (9) 225*d*.
minerals, physical properties, chemical and textural properties, B (1) 48*h*.
Ferrimagnetic materials, garnet-structure, for microwave use, P (7) 172*g*.
P (7) 172*d*.
Ferrites, Ba, mechanical comminution (7) 171*h*.
recrystallization (1) 45*c*.
bodies, coating, for magnetic recording heads, P (7) 172*a*.
coercive force, effect of intragranular microstrains in controlling (5) 145*b*.
Cu, bonding two surfaces to form model grain boundary (5) 139*h*.
ferromagnetic, slip casting soft, P (3) 77*h*.
fine-grained bodies, P (9) 219*j*.
formation, in Mg-Mn system (5) 139*c*.
garnet, magneto-optical properties (1) 35*h*.
hard, from Fe oxides or hydroxides, P (9) 219*e*.
hexa-, B, densification, effect of composition and heterogeneity (1) 26*i*.
hexagonal, magnetic structure and localization of Co^{2+} and Fe^{2+} in (1) 41*j*.
P (1) 28*e*.
hot-pressed, magnetic-mechanical-microstructural interactions (3) 73*e*.
hysteresis-loop, properties, effect of formation of microstructure (7) 171*b*.
internal, incorporating in microwave power tubes (3) 75*h*.
K beta, K ion conduction in (3) 90*h*.
Li, disorder-order transition in, effects of cation addition (3) 86*h*.
for magnetic memory cores, P (9) 219*c*.
manganite, magnetic annealing in (3) 89*j*.
and Ni, anisotropy and magnetostriction (9) 226*h*.
magnetite, and Ni Fe, magnetic anisotropy in (9) 233*c*.
materials, with improved magnetic and mechanical properties, P (7) 172*e*.
P (9) 219*j*.
matrices, apparatus for making, P (5) 126*i*.
Mg, crystal-lattice defectiveness and degree of inversion (5) 138*j*.
minerals, permittivity in microwave region (9) 236*g*.
Mn-Zn, high-density, P (5) 127*c*.
P (9) 219*d*.
powders, particle size distribution (7) 171*g*.
Ni, induced magnetic anisotropy in, effect of Ti (1) 26*a*.
Ni-Fe, polaronic dc conduction in (3) 74*c*.
Ni-Zn, electrical transport in, effect of Co substitution (7) 182*g*.
magnetic relaxation in (9) 234*f*.
P (5) 127*i*.
shape change of crystal grain and grain boundary (9) 238*h*.
$Ni_{0.7}Fe_{2.3}O_4$, oxidizing reaction in (1) 43*d*.
nonlinear properties, effect of domain structure (9) 230*g*.
at low temp. (9) 235*i*.
ortho-, La, magnetism (5) 141*e*.
magnetic domains in, X-ray diffraction topography (7) 172*g*.
P (7) 172*e*.
Pb, anisotropic, magnetic properties (9) 218*a*.
polycrystalline, P (5) 128*a*.
polycrystalline cubic, with grain orientation (1) 44*g*.
powders, sintering kinetics, effect of dislocation defects (9) 233*f*.
professional-grade, gastight furnace for sintering (1) 25*e*.
recording heads, glass-bonded, stress analysis (9) 218*g*.
soft, high-quality (3) 74*j*.
spinel, crystal structure and saturation magnetic moment (5) 140*h*.
thermal conductivity (9) 241*a*.
Y-Tb garnet-, magnetic anisotropy and magnetostriction (9) 234*b*.
ZnNi(Co)Fe_2O_4, porosity, scanning microscopy (7) 186*h*.
Ferroelectricity, domains, alignment of PLZT ceramic, comment (7) 170*b*.
enantiomorphous ordered, in $LiAl_5O_8$ (1) 38*b*.
in PZT ceramics, TEM (7) 180*h*.
domain walls, 90°, thickness in (Ba,Pb)TiO_3 single crystals (9) 241*g*.
element, irregular, with controllable single domain, P (5) 127*f*.
photo-, mechanism of effect of optical damage in Sr Ba niobate crystals (5) 143*j*.
properties, of $SrTeO_3$ single crystals (7) 171*a*.
Ferroelectric materials, ceramics, with high pyroelectric properties (3) 73*j*.
hysteresis characteristics (9) 217*f*.
P (7) 172*e*; P (9) 219*i*.
films, thin, depolarization fields in (7) 170*d*.
of KH_2PO_4-KDP type, theory (9) 241*j*.
Ferroelectrics, anti-, to ferroelectric phase transition in PLZT (7) 181*b*.
ceramic compositions, P (1) 28*a*.
defect, of type $Pb_{1-x}TiO_{3-x}$ (7) 180*c*.
P (1) 28*a*.
Ferromagnetic materials, anti-, attenuation damping of spin waves in (1) 35*d*.
magnetoacoustic resonance in, effect of pressure (5) 138*c*.
ceramics, P (1) 28*a*.
Curie point in, magnetic dipole forces and critical dynamics

Ferromagnetic materials Curie point in *(continued)*
above (1) 41*f*.
disordered, spin waves and density states in (1) 45*g*.
electrical conductivity, with domain structure (1) 38*f*.
Heisenberg, magnetization diffusion in (1) 41*j*.
particles, magnetic susceptibility, dispersion theory (9) 229*c*.
suspensions, magnetization kinetics (1) 42*a*.
single-crystal particles in, magnetic properties (1) 45*i*.
spinel, for absorbing uhf electromagnetic waves, P (5) 127*h*.
structures, multidomain, conductivity of electrons in (1) 41*d*.
thin film, electron-NMR in (9) 231*i*.
thin films, cross-tie walls in (3) 92*j*.
two-dimensional, disordered state in (1) 37*c*.
uniaxial, magnetic contrast in secondary electron images of (3) 89*a*.

Ferromagnetism, anti-, domains, in $KNiF_3$, X-ray topography (3) 90*d*.
origin in alloys of transition metals (1) 42*j*.
transition in Dy dihydride (1) 35*j*.
in $YFeO_3$, effect of anisotropy (9) 230*f*.
domains, observation by polarized neutron techniques (7) 176*j*.
impurity, in semiconductors (1) 47*d*.
transition, effect on self-diffusion in bcc FeSi (5) 140*j*.
weak, of antiferromagnetic $CoCO_3$ and $NiCO_3$ (9) 242*d*.
of Mn_5Si_3 (9) 242*d*.
transition of $Zr(Fe_{1-x}Co_x)2$ to paramagnetism (5) 146*i*.

Ferromagnets, anisotropic, generalized diagram technique and spin waves in (9) 232*d*.

Fibers, Al Cr silicate, with increased thermal stability (3) 63*i*.
alkali metal silicate, P (1) 20*i*.
alumina, firing process for, P (9) 213*c*.
P (7) 166*j*; P (7) 168*a*.
polycrystalline, P (9) 214*b*.
aluminosilicate, for lightweight kilns (3) 66*d*.
asbestos, multielectrode apparatus and techniques to prepare, P (9) 219*h*.
bonded, mat, apparatus for cutting, P (3) 79*c*.
carbon, fracture mechanisms in (1) 39*i*.
from organic fibrous material, P (5) 122*e*.
oxidation resistance (3) 66*b*.
oxygenation functions in (3) 65*f*.
P (1) 21*c*; P (3) 69*d*; P (5) 121*c*.
pore structure and properties (9) 210*h*.
size and shape of graphite layer in (7) 164*j*.
wet oxidation (3) 68*i*.
-reinforced plastics, acoustic emission during cyclic loading (3) 63*f*; -reinforced composite articles, pervious low-density, P (3) 70*c*; -reinforced Ni-based composite, P; carbon (5) 121*c*.
C-B, large-diameter (3) 54*c*.
ceramic, in difficult environments (3) 64*c*.
as energy saver in iron and steel industry (3) 64*c*.
gasket, P (3) 69*e*.
insulating modules for kiln and furnace construction (1) 18*h*.
insulation module, P (7) 177*i*.
refractory properties (3) 68*c*.
replica of body of reticulated organic foam, P (7) 167*e*.
coarse, and grains, effect on densification of sinterable SiC (3) 64*g*.
compacted, apparatus for removing from containers, P (7) 175*f*.
-composite material, P (1) 21*j*.
glass, adhesion to rubber, P (9) 204*b*.
articles of, P (3) 61*e*; articles, P (7) 161*d*.
attenuator traversing system, P (3) 60*j*.
basaltic, for reinforcing and filling gypsum panels (9) 193*j*.
Ba-free composition, P (5) 111*d*.
bonding to rubber, P (1) 13*h*.
bulk product, P (1) 14*j*.
catalytic amorphous, P (1) 13*h*.
chemical interaction with cement (7) 150*e*.
and clay (9) 193*d*.
coated with size containing starch esters, P (5) 112*g*; coated with complex organosilicon compounds, P coated with Si containing aminimide compounds, P (7) 161*h*; coated with composition adhesive to rubber, P (9) 205*c*; coated with silanized butadiene polymer, P (9) 205*d*.
coating, binder applicator for, P (3) 60*a*; coating and combined sizing and coating composition for, P (7) 161*f*; coating compositions for, P (9) 204*g*.
compatibility with mineral and polymineral matrices (9) 199*c*.
composite structures, detection of flaws in, P (3) 60*h*; composite felt, P (9) 204*i*.
and compositions containing, P (1) 14*j*; and compositions, P (7) 161*g*.
controlling forming operation, P (3) 60*f*.
crystallization while stretching, P (1) 14*a*.
cylindrical corrugated part, filament winding on corrugated form to make, P (1) 14*d*.
dispersion and nonwoven structure from, P (5) 112*h*.
drying by radiation (9) 202*i*.
elements, glass for coating, P (9) 204*j*.
endless belting, P (5) 112*g*.
fiberizer with ignition system, P (5) 112*g*.
filament, coating, P (9) 204*g*.
forming and coating method and apparatus, P (7) 162*j*.
galvanic separator, mechanically reinforced, P (7) 162*g*.
hexagonal bundle, mold for tacking, P (1) 14*i*.
insulation, binders for, P (3) 60*a*.
for integrated optics interconnections (3) 57*b*.

Fibers glass *(continued)*
ion-exchange strengthening of glass for (3) 57*g*.
K titanate, under hydrothermal conditions (5) 109*e*.
in laminate, mechanical strength (1) 9*g*.
light conducting, connection between, P (7) 161*f*.
light-conducting, P (3) 61*c*.
linear element, packaging, P (3) 61*g*.
material, electrostatic coating of, P (3) 60*i*.
mats, P (5) 112*e*; mats, impregnating compound for, P (5) 113*e*.
molded, and resin structure, P (3) 61*i*.
new types (1) 10*i*.
nonwoven, composites (9) 197*i*.
optical wave guides, by metal evaporation technique (3) 55*j*; for optical transmission (5) 104*d*; optical wave guides, laser drawing (5) 107*d*.
organic resin-coated, P (3) 61*j*.
organosilicon derivatives coated on, P (7) 162*e*.
P (1) 14*j*; P (3) 61*d*; P (5) 112*h*.
parallel, bodies of, P (3) 60*b*.
reinforced injection molding compounds, P (5) 112*e*.
reinforcement, P (5) 112*f*.
rock wool, acrylic, and pulp as reinforcement for molded xonotlite material (5) 116*g*.
sizes for, for reinforcing unsaturated polyester resins (5) 110*c*; sizes for, P; sizing, coating and combined sizing and coating composition, P (5) 114*d*.
sizing method, P (5) 112*f*; sizing composition for coating, P (9) 206*e*.
sizing agent for, P (3) 62*f*.
sizing composition, P (3) 62*f*.
with small protrusions, P (9) 206*a*.
strands, impregnating and coating, P (3) 61*a*.
stream feed, P (5) 112*g*.
surface (7) 160*b*.
textile, size for, P (5) 114*c*.
tiny "tornadoes" from (9) 203*d*.
in tire cord, P (7) 163*d*.
treated, analysis, P (1) 13*j*.
treatment, P (9) 206*j*.
use of Pt alloys in (5) 108*a*.
vinylidene fluoride polymer, P (5) 114*i*.
water-soluble sizing for, P (7) 163*e*.
winding, P (1) 15*i*.
yarn, spinning apparatus for, P (7) 163*a*.
-filled polycarbonate resins, P (7) 161*a*; -filled unsaturated polyester resin molding composition, P (9) 205*b*.
-reinforced cement, P (1) 4*a*; -reinforced elastomers, P (1) 14*j*; -reinforced mortar or concrete, P (3) 54*d*; -reinforced elastomers, P (3) 61*h*; -reinforced sytrene resin composition, P (5) 112*f*; -reinforced thermoplastic composition, P (7) 161*b*; -reinforced plastics, diamond tools in machining (9) 193*b*; -reinforced components, P (9) 204*f*; -reinforced polyamide molding material, P -reinforced elastomers, P (9) 205*b*; -reinforced plastics material, P (9) 206*b*.
as -reinforcement in polyester resin, fatigue behavior (1) 8*f*.
graded-index, optimum refractive-index difference for (5) 108*h*.
graphite, and ribbon, P (1) 21*c*.
-reinforced metal composite, P (3) 55*b*; -reinforced metal matrix composite, P (9) 213*d*.
graphitic, high tenacity materials, P (9) 213*f*.
heat-insulating, for filling casing, P (3) 69*a*.
inorganic, nonmetallic, increasing strength, P (7) 162*e*.
P (1) 21*f*.
sizing, P (1) 15*f*.
insulating sheet, P (7) 175*i*.
insulation, in walls (3) 81*i*.
K titanate, from K_2O-TiO_2 glass, hydrothermal synthesis (5) 107*f*.
Mg, and alloy materials, P (3) 69*j*.
mineral, blankets, apparatus for, P (7) 175*e*.
fine, rotary forming unit for, P (5) 114*b*.
mineral wool, acoustic plates, electric heating during mfg. (5) 117*b*.
optic, bundle, termination for, P (3) 62*j*.
conduit, improved, P (3) 61*b*.
core glass for, P (5) 112*a*.
highly transparent solids for (9) 198*j*.
P (7) 161*a*.
optical, absorbing, cross talk in (1) 6*j*.
absorption and scattering losses in, simultaneous measurements (5) 108*f*.
all-glass tapes (5) 104*i*.
bundles, P (7) 162*d*; bundles, P (9) 204*c*.
depositing, P (7) 161*i*.
ellipticity measurement (5) 106*h*.
end preparation, for low-loss splices (5) 108*c*.
ends, for low-loss tape splices (5) 109*f*.
flexible conduits, P (7) 161*b*.
geometrical variations in, P (3) 61*b*.
germania cores in, P (9) 204*g*.
graded-index, pulse broadening in (5) 109*a*.
high-silica, graded-index, preparation and structure (7) 159*h*.
index-gradient, magneto-optical properties (7) 158*g*.
joining bundles, P (5) 113*f*.
laser heating (9) 201*e*.
light wave guide, P (5) 113*e*.
low-loss single-material, from pure fused SiO_2 (5) 107*h*; low-loss splices in (5) 107*i*.

Fibers optical *(continued)*
microbending loss in (5) 108*g*.
multimode, interplay of absorption and radiation losses (9) 202*e*; multimode graded index, transmission characteristics (9) 202*f*.
P (1) 15*a*; P (7) 162*d*; P (9) 205*d*; P (9) 206*a*.
packaging, and effect on fiber straightness and loss (5) 108*d*.
plate, gastight light-transmitting, P (7) 161*d*.
with porous cladding, P (1) 15*a*.
ribbon, P (3) 61*j*.
single-material, experiments (5) 106*d*.
tapes and cables, connecting and splicing (5) 108*a*.
transmission systems potential (5) 108*f*.
wave guide, hot splices (7) 157*d*; wave guide, P (7) 162*e*.
wave-guide, low-loss, P (5) 112*j*.
-strip line coupler (1) 10*c*.
optical wave guide, index-gradient, polarization optics (5) 109*c*.
P (3) 69*j*.
quartz, EPR and ir spectroscopic studies (5) 106*j*.
and Si, surface state, effect of thermal treatment and adsorption of H_2O (5) 106*c*.
refractory, laminations, P (5) 122*c*.
from natural raw materials (5) 119*i*.
P (7) 168*c*.
refractory metal oxide, P (9) 212*b*.
-reinforced, cement and concrete, B (7) 190*f*.
hot-pressing molds, P; metal, P (3) 69*j*.
SiC, continuous (1) 16*d*.
with high tensile strength, synthesis (9) 212*c*.
protective coatings for, in contact with Ni alloys (3) 67*h*.
thermal stability (9) 212*g*.
silica, fused-, permanent multiple splices (5) 109*b*.
P (1) 22*h*.
splicing with electric arc (7) 159*e*.
silicate, crystalline, controlled growth (9) 228*d*.
hearing, processes taking place during (1) 10*j*.
mat, of high tensile strength, P (9) 213*d*.
with Si-O bonds, P (5) 112*h*.
Si_3N_4, Young's modulus (3) 93*j*.
strand, P (7) 175*h*.
superconductor, alpha-MoC, P (1) 27*i*.
thoria-SiO_2-metal(III) oxide, high-density, P (3) 69*e*.
tungsten, deposition of ZrC coatings on (5) 103*c*.
zirconia, P (3) 69*a*.

Filaments, boron, for forming filamentary composites, strengthening, P (3) 70*d*.
with TiC-coated substrate, P (1) 21*a*.
conductive breakdown, in electrophotography (1) 27*a*.
discontinuous, formation directly from molten material, P (1) 31*h*.
glass, metallic, centrifugal spinning (5) 104*h*.
oriented, densification in hot-pressing (3) 85*h*.
transient temp., direct ir measurements, during switching in VO_2 film devices (7) 170*e*.

Films, anodic oxide, on Bi, absorption edge and energy gap (3) 72*h*.
electron-beam-deposited, controlling composition, P (9) 219*f*.
epitaxial, growing from liquid phase, P (7) 172*h*.
and nonepitaxial, thickness dependence of cluster density (3) 75*f*.
glass, insulating, forming on Si steel sheet, P (5) 127*i*; insulating, forming on Si steel sheet, P (5) 127*j*.
(Se,S)-based chalcogenide, for holographic supermicrofiche (5) 109*g*.
glasslike, electrically conductive, on glass or ceramic surfaces, P (5) 127*e*.
insulating, forming on interconnection layer, P (5) 127*i*.
metal, on glass substrates, improving adherence, P (1) 28*f*.
metal oxide, transparent, P (5) 114*h*.
metal-semiconductor, molecular beam epitaxy, P (5) 127*g*.
monocrystalline, defect-free, growing, P (5) 127*c*.
monolayers, insoluble, thermodynamics (1) 47*d*.
optical, moisture-resistant (5) 108*i*.
oxide, refracting light-permeable, P (1) 29*f*.
polycrystalline, of elementrary substances on substrates, P (5) 128*a*.
of refractory material, with bidirectional reinforcing properties, P (1) 28*b*.
scratch-resistant, hard, P (5) 113*c*.
thickness, measurement from lattice absorption bands (1) 32*f*.
thin, absorption at 10.6μm (5) 104*e*.
anodic, filamentary breakdown in (1) 25*j*.
of complex composition, formation principles (9) 232*h*.
device, selective etchants for, P (9) 220*b*.
elastic and piezoelectric surface waves guided by (7) 181*a*.
Fabry-Perot cavity for laser crystal, P (5) 128*b*.
growth, interaction of screw dislocation with interfaces during (1) 26*c*.
insulating, containing metallic particles, P (3) 77*a*.
metal, depositing, P (5) 127*d*.
metallic, treatment, P (1) 15*h*.
optical coater, P (7) 173*d*.
oxide, on Si in microwave magnetoactive O plasma (5) 125*g*.
rf sputtered for integrated optical components (3) 75*a*.
and solid-phase reactions (5) 126*c*.
sputtered dielectric, P (9) 220*c*.
and thick-film boundary conditions, diffusion equation with tracer coeff. exponentially dependent on concen-

Films thin *(continued)*
tration (9) 241*i*.
Filters, cake clearing, P (1) 24*c*.
cake thickness, measuring, P (3) 81*e*.
ceramic, mounted, P (5) 127*h*.
ceramic foam, P (7) 167*f*; P (9) 212*f*.
for ceramic slips (5) 129*j*.
for fluids, electrically conducting, P (5) 130*b*.
glass, as standard reference material for spectrophotometry (5) 131*b*.
hf, ceramic suitable for, P (1) 28*e*.
magnetic, P (5) 130*d*.
optical, for Nd laser light, P (9) 205*j*.
P (1) 31*g*.
refractory, for foundry production (3) 67*h*.
sintered, with straight holes through, P (7) 163*a*.
small-sized, effective (1) 2*g*.
tube pressure, P (9) 222*d*.
Firing, arcuate ceramic segments, P (9) 224*j*.
bone china, intermittent (7) 169*i*.
brick, energy-saving, with coal (3) 81*e*.
cups, clay-glazed (7) 169*c*.
one-high, advantages and limitations (5) 133*d*.
powders, method and apparatus, P (5) 130*d*.
problems, solving with lab techniques (1) 33*g*.
reduction, of ceramics composited with organic binders, P (5) 130*f*.
techniques, in sanitary ware industry (3) 81*c*.
Fission products, gas bubbles, in UO_2, extraction from precipitates (5) 128*e*.
glass-ceramics for (7) 173*d*.
in irradiated fuel pins, quantitative determination using gamma scanning (1) 29*j*.
nitrates, thermal decomposition, and reaction with glass batch (7) 173*g*.
in nuclear reactor, primary target for production, P (7) 174*d*.
repository for, P (5) 129*b*.
solid, diffusion in irradiated coated particles (7) 174*d*.
Flocculants, organic, effect on dispersibility of kaolin B, Oberwinter (5) 123*g*.
Flocculation, agents, P (3) 72*e*.
of clays, spectrophotometric measurement of rate (9) 239*b*.
Flotation, of boric acid, from $NaSO_4$, P (3) 83*b*.
froth, to recover minerals, P (3) 83*c*.
of oxide minerals, in hot pulp, P (3) 83*b*.
surface forces in, discussion and reply (9) 226*b*.
Flow, of solids, estimate through openings in bin (1) 32*i*.
technique, to determine low surface areas (1) 32*f*.
Fluorescence, properties, of U phosphate glasses (3) 60*a*.
in ThO_2 (7) 188*c*.
Fluorides, effect, on synthesis and sintering mullite bodies (9) 209*i*.
emission, control methods in flue gas (3) 80*i*.
ions, removing, P (7) 174*e*.
metal, effect on Mg aluminate formation (3) 89*e*.
$MSnF_4$, (M = Pb,Ba,Sr), with PbClF type structure (7) 184*g*.
oxy-, with pyrochlore crystal structure (1) 42*d*.
in solids, and gaseous emissions (3) 80*b*.
Fluorine, effect, on phase separation and crystallization in Mg-O-Al_2O_3-SiO_2 glass (1) 6*f*.
on Ti enamels (5) 103*i*.
in phosphate rock, reducing, P (9) 226*a*.
recovery, from H_3PO_4 by-product brine raffinate, P (5) 135*b*.
removal, from waste waters as fluorapatite (7) 175*a*.
Fluorspar, nonmetallic mineral (9) 225*d*.
Fluxes, substitute, for D.F. stone (7) 168*f*.
Fourier analysis, of diffraction line profile (1) 42*i*.
Fracture, of Al_2O_3, variation with flaw character (5) 121*h*.
of Al_2O_3 refractories, in crown of arc furnace (9) 209*d*.
in C fibers (1) 39*i*.
creep, in solids, B (5) 147*h*.
of glass, experiments (5) 104*g*.
mechanics analysis (1) 8*i*.
thermally activated, discussion (7) 156*e*.
in glass matrix composites (3) 59*c*.
mechanics, study of solid state bonding of metal-ceramic laminates (3) 73*b*.
of MgO bicrystals, effect of grain boundary (5) 137*e*.
of Si_3N_4, hot-pressed, from contolled flaws in (5) 142*f*.
strength, of Al_2O_3, dependence on strain rate (9) 229*a*.
stress, vs flaw size curves (7) 179*e*.
thermal-stress, and fractography in UO_2 (5) 146*i*.
toughness, of Al_2O_3 (3) 88*i*.
of ceramics, single-edge notched beam for testing (7) 175*g*.
determinations by indentation (9) 232*c*.
of phosphate-bonded Al_2O_3 reinforced with metal filaments (5) 103*g*.
of slip-cast fused SiO_2 (1) 17*h*.
Friction, of Al_2O_3-metal systems, effect of adsorbed films (9) 230*e*.
anti-, material, P (9) 213*d*.
disk, C composite, for disk brake, P (7) 167*d*.
internal, of glass, mixed alkali-alkaline earth metaphosphate (1) 9*b*; of glass, mixed alkali borate (1) 9*c*; of glass, mixed alkali metaphosphate (1) 9*e*.
in hardened cement pastes (7) 151*a*.
of Li metaphosphate glass, effect of dissolved heavy H_2O (1) 7*e*.
in Na_2O-H_2O-P_2O_5 glasses (3) 57*e*.
static coeff., apparatus for measuring (5) 130*i*.
and wear, between quartz and steel, effect of environment (7) 149*a*.
Frost resistance, of building materials, laboratory tests (9) 207*d*.
of cement, experiments (7) 151*b*.
of porous materials, critical moisture contents (7) 150*c*.
of tile, roofing (9) 206*h*.
wall and floor, relation to climate (9) 216*c*.
Fuel elements, exchange system, P (7) 174*h*.
handling arrangement, P (3) 78*f*.
nuclear, containing strips of alloyed getter material, P (1) 30*i*.
irradiated, treatment, P (5) 129*d*.
P (5) 129*i*; P (7) 174*b*.
for nuclear reactor, gas-cooled, P (5) 129*f*.
high-temp., P (1) 30*g*.
P (7) 174*c*. P (7) 174*i*.
for nuclear-reactor cores, P (1) 30*h*.
for reactor, high-temp. gas-cooled, P (9) 221*c*.
P (5) 129*f*.
remote-control grab for, P (5) 129*d*.
setting down, and lifting, device in core reactor, P (7) 174*i*.
shipping shim, for nuclear reactor, P (1) 30*g*.
Fuels, air/, ratio control for recuperative burner system (3) 81*c*; ratio control with preheated air (3) 81*h*.
coal (5) 133*h*. added to clay to reduce fuel consumption (5) 132*e*.
liquefaction process, P (3) 81*j*.
practical for tunnel-kiln firing of brick (5) 133*f*.
tangible hedge for energy (5) 132*e*.
conserving, in brick industry (7) 177*a*.
consumption, competition from plastics (3) 81*i*.
reducing in glassmelting ovens (9) 202*b*.
reduction, in brick and clay blocks production (3) 63*j*.
consumption problem (9) 224*b*.
costs, how to cut (9) 224*c*.
diesel, effect on quality of crystal glass (5) 105*h*.
gas, in ceramic industry in North Bavaria (9) 224*h*.
methane recovery from sanitary landfills (9) 224*d*.
metering, to control excess air (7) 177*a*.
methane, as energy source in Italy (9) 224*f*.
nuclear, assembly, grid for, P (5) 129*g*; assembly, P (9) 221*d*.
bodies, P (3) 78*h*.
bundles, assembly mechanism for, P (9) 220*i*.
casks, handling system for, P (7) 174*j*.
coated particles, P (7) 174*f*.
C-coated, SiC coating on, P (5) 129*c*.
encapsulated or clad body, P (7) 174*h*.
with increased Pu diffusion velocity during sintering, P (1) 30*i*.
irradiated, treatment, P (9) 221*f*.
of low density, P (9) 220*i*.
microspherical ceramic, P (3) 78*h*.
mixed, pellets, P;particles, pyrolytic C and SiC coating for, P (5) 129*h*.
P (5) 129*h*; P (5) 129*i*; P (7) 174*a*; P (7) 174*b*.
particle, P (5) 129*i*.
pellet loading machine, P (7) 174*c*.
pellets, P (9) 200*j*; pellets, P (9) 221*b*.
pin, P; rod frame, P; subassembly, P (5) 129*j*.
rod failures, detection, P (5) 129*g*.
rods, spring spacer device for supporting, P (1) 30*a*; rods, malassembled, detection, P (1) 30*d*.
spent assemblies, shipping cask for, P (9) 221*f*.
tablets, improved, P (7) 174*j*.
UO_2 sintered, P (5) 129*c*.
nuclear reactor, ceramics as (9) 220*a*.
irradiated, P (9) 221*e*.
low-density, P (7) 174*a*.
P (9) 221*e*.
oil, for furnaces, and development of dual fuel furnace (3) 81*f*.
properties, storage, preconditioning and design (1) 33*f*.
particles, encapsulated thermonuclear, P (9) 221*b*.
with pyrolytic C coating for nuclear reactors, P (7) 174*i*.
pins, irradiated, fission products in (1) 29*j*.
reactor, stable, of controlled density using active UO_2 powders (9) 220*e*.
rod, pellet-loading head, P (1) 30*h*.
tubular cluster, P (7) 174*f*.
Furnaces, blast, heating air for (5) 133*j*.
channel induction, P (1) 21*e*.
for continuous firing, P (7) 177*j*.
continuous-type, atm isolating means in, P (1) 33*i*.
cupola, for mineral wool (9) 208*f*.
cylindrical, revolving, P (5) 133*a*.
electric, direct, for preparation of SiC, P (7) 167*j*.
with heating element supports, P (3) 82*a*.
P (7) 177*j*.
reaches 1100° in 3 min (3) 81*g*.
electric arc, and building block for, P (9) 213*b*.
electric enameling, improve Harvestore quality (3) 54*i*.
emissivity, study with introduction of pulverized coal particles (1) 33*g*.
floor, laying, P (3) 82*b*.
forehearth, heating, development and problems (1) 6*j*.
gas-burning, testing for glassmelting (1) 33*e*.
gastight, for sintering ferrites (1) 25*e*.
glass, basin wall, preventing erosion, P (3) 61*g*.
carryover studies in (3) 55*h*.
control of emissions (9) 199*d*.
electric, day-tank operation (3) 56*b*.
electrical melting (9) 200*f*.
flat, P (5) 112*i*.
Furnaces glass *(continued)*
heat-treating sheet material, P (5) 112*a*.
large-size, mass transfer in (9) 202*f*.
P (3) 61*d*.
pellet preheating and volatile recycling structure for, P (9) 206*b*.
regenerators (5) 108*i*.
roller hearth, P (7) 162*i*.
treating, P (9) 205*g*.
TV monitoring of operation (3) 59*i*.
glassmelting, automated, for electrical heating (9) 199*e*.
effect of overpull (3) 56*f*.
electric, P (3) 60*i*.
electrically heated, cooling, P (1) 14*a*.
increasing electric power in, P (9) 204*d*.
melt level in, photoelectric signaling equipment for (9) 202*j*.
by natural gas (5) 132*j*.
P (3) 61*i*; P (5) 113*b*.
performance test (1) 12*j*.
rapid heatup technique (3) 59*b*.
reducing fuel consumption (9) 202*b*.
glass tank, combustion of fuel in (9) 199*c*.
energy balance, evaluation (7) 158*j*.
fuel-fired, pollution control in (1) 10*g*; fuel-fired, pollution control in (3) 58*d*.
melting and, fuel economy in (7) 157*f*.
multiple-electrode, temp. and flow fields (1) 12*j*.
P (5) 113*b*.
regenerators, waste heat boilers downstream (7) 160*g*.
small, direct electrical heating (1) 7*a*.
with two basins for melting crystal glass (1) 8*c*.
high-temp., heat-insulating, P (9) 213*f*.
high-pressure, P (7) 177*j*.
industrial, recuperation of physical waste heat from, thermodynamic evaluation (7) 177*g*.
lift swing, P (1) 34*c*.
lining apparatus, P (9) 224*j*.
melting baths, open, heating, P (1) 34*b*.
for optical fibers, resistance-heated high-temp. (5) 133*e*.
panel modules for, P (9) 224*j*.
pressure, double effect, for low-temp. heating (5) 132*f*.
for quartz tubes, P (5) 133*i*.
shaft, for firing limestone (9) 224*f*.
fluidized-bed, P (3) 82*a*.
sintering, P (3) 82*c*; P (5) 133*a*.
vacuum and pressure, P (7) 175*f*.
skelp heating, off-take in (3) 65*i*.
slab reheating, and refractories, improvements (7) 177*b*.
stack cleaning, of solid and gaseous wastes (5) 132*f*.
stoking, for ceramic bodies, automated control (9) 224*g*.
temperature, device for positioning in wall and for measuring, P (7) 177*c*.
tempering, P (7) 163*c*.
temp. profiles, by spectroscopic methods (5) 131*a*.
for thermal treatment, of products supported by gas cushion, P (5) 133*j*.
tunnel, direct-fired, P (1) 34*a*.
P (1) 34*c*; P (5) 133*a*; P (9) 225*a*.
thermodynamic efficiency (9) 224*g*.
walking beam, P (7) 178*b*.

Gadolinium, aluminate, single crystals, cathodoluminescence of rare earth ions in (3) 84*g*.
$Gd(ReO_4)_3.4H_2O$, single crystals, optical properties (1) 42*i*.
$Gd_xY_{1-x}Fe_2$, NMR studies (1) 42*f*.
$Gd_2(MoO_4)_3$, crystals, elastic and photoelastic properties (9) 230*i*.
molybdate, ferroelectric, electrooptic coeff. and birefringence (9) 241*f*.
oxide, ceramics from, properties (5) 119*c*.
Gages, pneumatic, for determining moisture content of building materials (9) 223*i*.
strain, electric resistance, for strain measurement (1) 32*g*.
Gaging, electron optical, measurement at reasonable distances (7) 176*b*.
Gallium, acceptors, removal, effect in ion bombarded Si (1) 37*j*.
analog, beta-Al_2O_3, flux growth (5) 139*f*.
arsenide, alpha-particle irradiated, ir attenuation in (1) 40*b*.
chemical transport by water vapors, thermodynamics (3) 75*c*; chemical transport, kinetics (5) 141*d*.
Co diffusion in, effect of complexing (5) 137*b*.
deep centers in (5) 144*g*.
epitaxial layers, EPR (1) 25*j*.
epitaxy, transition processes in (9) 218*h*.
Fe-doped, electron traps in (9) 240*f*.
films, incorporation of Sn and Te in (1) 26*i*; films, residual conductivity formation in, effect of surface band bending (9) 238*e*.
GaP, bubble garnet, isothermal diffusion theory of liquid phase epitaxy (1) 26*d*.
Hall effect in (9) 232*i*.
initial growth on (100) Ge (3) 89*d*.
interdependence of strain, precipitation, and dislocation formation (9) 233*d*.
ion-implanted N in (7) 183*e*.
layer as ohmic contact, P (3) 76*b*.
n-, films, nonreciprocal effects in crossed E- and H-fields (1) 26*i*.
n-type, absolute negative resistance, conditions causing (1) 36*d*; N-type, refractive index (7) 186*a*.
and phosphide, (100) surfaces, thermal annealing (7) 180*e*.
p-, 1.35 eV emission band in (5) 135*h*.
semi-insulating, conductivity in (3) 75*a*.

Gallium arsenide *(continued)*
single crystals, plastic deformation (3) 92*i*; single crystals, impurity of inhomogeneity in, microcathode luminescent study (9) 235*e*.
space-charge scattering in (5) 126*g*.
supermagnetism (9) 240*f*.
vapor-phase epitaxial growth (7) 188*g*.
-AlGaAs epitaxial layers, optical waveguides in (7) 171*g*.
(100) and (110) single crystals, photoemission from (3) 90*b*.
(1,1,0) face, emission from (9) 231*d*.
:Cr, high-resistivity, photoelectronic properties (9) 237*d*.
:O, high-resistivity, photoelectronic properties (9) 237*d*.
arsenide phosphide, vapor deposition on GaAs substrates, P (5) 128*j*.
binary selenites, composition and properties, effect of alkali metals (5) 138*a*.
-containing layers, Sn-doped group IIIA-VA by molecular beam epitaxy, P (7) 173*i*.
diffusion, in Si_3N_4 films, ion probe technique for study (3) 74*a*.
+antimony, thermodynamic properties (3) 93*d*.
Ga(As,P), dislocation structure analysis by etching (5) 142*c*.
$GaAs_{1-x}P_x$, dislocations in (9) 217*e*.
$(Ga_xIn_{1-x})As$, ion-implanted photodiode detectors in (5) 107*b*.
$Ga_xIn_{1-x}Sb$, Hall effect and conductivity (1) 39*h*.
$Ga_{1-x}In_xAs$, electron and hole mobilities in (1) 38*j*.
oxide, P (1) 34*h*.
-P diffusion, P (7) 172*g*.
phosphide, /Si, two-stage heteroepitaxial deposition, P (9) 220*e*.
green light-emitting device, P (5) 127*b*.
group IV elements in, behavior (5) 135*d*.
growth, P (3) 76*c*.
induced direct transition photoresponse in (5) 140*j*.
p-n junctions in, stochastic phenomena in (5) 145*d*.
SEM cathode-luminescent studies (5) 145*d*.
single crystals, P (7) 173*i*.
(p), -(n)GaP-(p)GaAs heterostructure (5) 143*j*.
selenide, crystals, electrical modulation of multiple interference in (5) 138*f*.
selenite, interaction with Cs selenite (5) 140*d*.
sesquioxide, effect on sintering $SrZrO_3$ and $CaZrO_3$ (7) 186*d*.
in Si, behavior (5) 135*c*.
solders, to oxide materials, adhesion (3) 74*f*.
sulfide, chemical transport, thermodynamical calculations (1) 47*d*.
surface, electron structure, magnetoacoustic study (9) 234*g*.
telluride, electrical powers (5) 125*h*.
single crystals, negative resistance and memory effects in (7) 171*j*.
Galvanometry, recorders (9) 223*g*.
Gamma rays, intensity, determination (3) 82*i*.
-quanta, emmission from crystal in case of hyperfine splitting (5) 139*a*.
Garnets, almandite-rich, chemistry and structure of high-pressure phase (9) 227*d*.
bubble, GaAs, GaP, isothermal diffusion theory of liquid phase epitaxy (1) 26*d*.
$Ca_3Fe_2Ge_3O_{12}$, and $Ca_3Fe(Al, Cr)Ge_3O_{12}$, growth in Bi germanate glass (3) 57*j*.
$Ca_3Mn_2Ge_3O_{12}$, specific heat (1) 45*g*.
crystals, local inhomogeneity (1) 41*b*.
spectroscopy (5) 145*a*.
ferrite, Magneto-optical constants and magneto-optical effects (9) 234*i*.
Fe-Y, excitation of nonlinear ferromagnetic resonance in, birefringence of light on (9) 227*c*.
films, chemical vapor deposition, for magnetic bubble use (1) 24*h*.
controlled adjustment of bubble domain parameters in (7) 180*f*.
for magnetic bubble (9) 218*f*.
topological switching and anisotropic saturation velocities in (1) 26*d*.
Ga, single crystal, P (9) 220*b*.
Gd Fe, magnetization compensation point in, magneto-optical studies (1) 42*a*.
single crystal, Faraday rotation and optical absorption (7) 182*f*.
Gd Ga, climb trails at dislocations in (1) 36*b*.
crystals, growth and characterization (1) 39*e*.
dislocations in (9) 229*b*.
germanate, and silicate, crystallization (9) 228*g*.
LPE, thin films, annealing effects on magnetic anisotropy (5) 124*d*.
magnetic, films, preparation and properties (9) 238*a*.
rare-earth, containing Sc, crystal stoichiometry (1) 25*c*.
thin film deposition, P (9) 220*d*.
single crystals, $Y_3Fe_{5-x}Ga_xO_{12}$ and $Y_3Fe_{5-x}Al_xO_{12}$, growth and saturation magnetization (5) 140*h*.
thin films, cylindrical bubble propagation in (3) 73*b*.
YAG, and DAG, thermostimulated phenomena of Dy ion in (5) 140*g*.
single crystals, absorption spectra of Fe^{3+} and Mn^{2+} in (9) 226*e*.
Y Al, and Gd Ga, microwave phonon attenuation in (9) 235*f*.
Y-Fe, epitaxial thin films, preparation and properties (9) 218*h*.
Garnets Y-Fe *(continued)*
intrinsic spin wave relaxation processes in (9) 233*d*.
Y-Ho ferrite, magnetic anisotropy (5) 125*e*.
YIG, anisotropy and magnetostriction (9) 226*j*.
crystals, Ga-substituted, growth (1) 39*f*; crystals, interaction between individual dislocations and 180° domain walls in (5) 139*b*.
electrical and optical properties (9) 217*a*.
initial permeability in, X-ray induced (9) 242*e*.
magnetic anisotropy and magnetostriction (1) 41*f*.
photomagnetic effect and electron diffusion after-effect in (1) 43*f*.
single crystals, polarization-optical studies on magnetization processes near dislocations in (1) 43*i*.
system, in applied magnetic field, Moessbauer effect (3) 74*f*.
:Mn, ferrimagnetic resonance in (1) 26*j*.
yttrium, composition limit and magnetic properties (7) 180*b*.
Gases, DTA (1) 32*g*.
apparatus for (3) 79*d*.
effect, on acoustic and thermal insulation of double glazing unit (1) 7*g*.
exhaust, of internal combustion engines, treating, P (9) 213*f*.
temp., of automobiles, thermo-sensor for (9) 212*g*.
extraction, high-temp., from ceramics (9) 222*j*.
flammable, and dangerous, electronic equipment to monitor (7) 174*h*.
flue, absorption of S oxides from, P (5) 130*j*.
analysis, by ZrO_2 probes (1) 33*i*.
partial use for fuel economy (5) 132*h*.
removal of SO_x (9) 224*a*.
in glass bubbles, analyzing by KhL-69 chromatograph (9) 203*d*.
hot, temp. measurement, P (1) 33*b*.
inert, solubilities and diffusion coeff., in inorganic glasses (9) 203*f*.
migration, in vitreous B_2O_3 (9) 200*b*.
pressure, in coated particle fuels (3) 77*j*.
purification, electrostatic, in refractory production, effect of free radicals (9) 209*f*.
rotary kiln, sampling technique for (5) 99*c*.
S removal from, P (7) 178*a*.
stack, recovering energy from (7) 177*e*.
Generators, MHD, insulating walls, BeO ceramics for (3) 72*b*.
Geology, and mineralogy, of Yavi district, Jujuy Province (3) 82*c*.
of ultrabasic rocks, in Bulgaria (3) 82*c*.
Germanates, cyclic, vibrational spectra (5) 147*c*.
rare earth, synthesis and electrical properties (3) 92*d*.
thermodynamic relations, among olivine, spinel, and phenacite structures in (7) 188*a*.
Germanium, a-, and c-, different proportions determined by refractive index (1) 25*e*.
alloy, films, structural properties (1) 35*c*.
amorphous, atomic radial distribution function in (1) 40*f*.
magnetoresistance in (1) 42*a*.
CdTe films on, structure (5) 126*j*.
conductivity holes in, qualitative treatment of anisotropy (1) 44*b*.
conductivity in, effect of nonuniform magnetic field (1) 37*g*.
deformation temp. in, dislocations of different character depending on (1) 40*g*.
diiodide (1) 39*c*.
dislocation-free, mobility of dislocations in (5) 142*g*.
dislocations in, effect of electrically active impurities on mobility (1) 37*j*.
Ge_xTe_{1-x}, films, structural, electrical, and optical properties (9) 240*b*.
hot holes in, effect of magnetic field on fluctuations (1) 37*e*.
laser-irradiated, topography (1) 47*f*.
nitride, films, conductance in high electric fields (1) 24*j*.
n-type, current instabilities in (5) 137*b*.
plastic deformation, dislocation processes during (1) 37*b*.
polycrystalline, electroconductivity, dependence on temp. and pressure (5) 137*d*.
p-type, effect of dislocations (1) 37*i*.
uniaxially stressed, transverse magnetoresistance (1) 47*i*.
-Se, thin films, structure (1) 46*e*.
selenide, films, isothermal electrical polarization (5) 125*c*.
-Si crystals, morphological features (5) 142*i*.
silicide, films, vacuum deposition, kinetics (1) 26*d*.
-Si mullite, synthesis (9) 240*j*.
single crystals, properties (5) 144*i*.
sulfide, crystal, growth spirals on (1) 26*d*.
single crystal, preparation and structural properties (7) 186*i*.
surfaces, clean, restructured, and O-stabilized, ZnSe deposited on (1) 25*f*.
thin film, P (9) 220*d*.
(100), GaAs initial growth on (3) 89*d*.
Glass, absorptive, P (1) 13*i*; P (9) 204*b*.
adhesion, to rubbery copolymers, P (9) 205*h*.
$AgAsS_2$, optical reflection (5) 108*e*.
Ag-containing, color development in (5) 105*d*.
Ag halide, photochromic, B-free, P (9) 204*f*.
Ag_2O, high, P (9) 205*g*.
alkali, elastic modulus (1) 7*d*.
alkali-alkaline earth metaphosphate, internal friction and dielectric losses (1) 9*b*.
alkali Ba silica, to -dumet wire seals (3) 55*g*.
alkali borate, containing Sn, study by Moessbauer effect (1) 11*j*.
He migration in (7) 157*a*.
Glass alkali borate *(continued)*
internal friction and dielectric losses (1) 9*c*.
alkali borosilicate, porous, ion exchange on (9) 201*j*.
alkali Ca borate, absorption and fluorescence spectra (3) 55*f*.
alkali metal silicate, highly siliceous, P (5) 113*e*.
alkali metals in, determination by electron probe microanalysis (1) 6*g*.
alkali metaphosphate, internal friction (1) 9*e*.
alkali phosphate, Fe in, equilibrium studies, comments and reply (3) 55*i*.
alkali-resistant, P (1) 13*j*.
alkali silicate, abrasive impact (5) 135*e*.
conductivity and electrical relaxation (1) 7*j*.
structure, study by ^{29}Si NMR absorption and adiabatic fast passage (1) 11*e*.
aluminoborosilicate, alkali-free, refining in electric arc furnace (3) 59*c*.
aluminosilicate, by activation decomposition of heteroorganic compounds (3) 58*e*.
coordination of Al ions in, effect of H_2O (9) 201*d*.
Al_2O_3-Nd_2O_3, physical properties (9) 202*a*.
amber, quality and convection patterns, effect of batch charging (3) 56*j*.
ampoules, making with no contamination, P (3) 61*e*.
analysis, by emission spectroscopy (5) 105*f*.
annealing, P (3) 61*c*; P (7) 160*i*.
antireflection, for solar collector covers, thermal radiative properties (1) 12*d*.
Ar diffusion in, Kr, and Xe, nuclear chemical investigation (7) 158*g*.
articles, with brown to reddish-brown color, P (1) 14*f*.
coated, P (7) 161*f*; coated to reduce solar radiation transmission, P (9) 204*i*.
color-decorated plastic-coated, P (5) 111*g*.
conductively coated crystalline, P (3) 60*e*.
flame masking, for metal oxide film deposition, P (5) 112*i*.
hollow, P (3) 61*j*; hollow, P (7) 162*c*.
with increased mechanical strength, P (3) 61*c*.
increasing mechanical strength, P (7) 162*d*.
P (1) 14*f*; P (5) 112*a*; P (9) 204*h*.
plastic-coated, lubricity coating for, P (5) 113*g*.
with protected edge portions, P (7) 161*e*.
protection from abrasion, P (5) 113*h*.
strengthened composite, P (9) 206*g*.
thermoplastic ink-decorated polymer-coated, P (5) 111*g*.
As borax, fluorescence intensities and lifetime of Sm^{3+} and Tb^{3+} in (1) 13*c*.
As-Ge-Se, dielectric and magnetic properties (3) 56*h*.
As-Se, atomic arrangements in, Monte Carlo models (1) 10*a*.
As_2O_5, P (9) 204*e*.
As_2Se_3, group IIA impurities in (1) 8*d*.
As_2Se_5-P_2Se_5, optical properties (3) 58*j*.
As_2S_3, chemical composition, effect of melting conditions (5) 105*j*.
structure (5) 110*j*.
As_2S_3-Ag_2S, GeS_2-GeS-Ag_2S, and P_2S_5-Ag_2S, ionic conduction in (9) 201*a*.
As_2S_3-Tl_2S, and As_2S_3-Ag_2S, structure (1) 11*g*.
Au-Ge-Si metallic, kinetics of formation (1) 9*i*.
basalt, melted at different temp. solubility (9) 203*f*.
batch, agglomerating in fluidized bed, P (1) 13*j*.
decomposition, gas chromatography (5) 111*c*.
errors in analysis (5) 106*b*.
importance of cullet in (5) 107*h*.
materials, pelletizing, P (3) 62*a*.
for melting silicate glass, P (7) 161*e*.
P (5) 112*b*.
pelletized, P (3) 62*a*.
prereacted lead, optimization (5) 108*h*.
wetting system, P (1) 14*g*; wetting, detergents for (9) 199*c*.
beads, for commercial use (7) 158*h*.
high refractive index, measurement (1) 11*c*.
bells (9) 202*c*.
from bentonite (5) 106*g*.
Bi germanate, growth of $BaAl_2O_4$, $SrAl_{12}O_{19}$ and $Mg_6Ga_4GeO_{10}$ crystals in (3) 57*j*.
growth of $Ca_3Fe_2Ge_3O_{12}$ and $Ca_3Fe(Al,Cr)Ge_3O_{12}$ garnets in (3) 57*j*.
growth of Zn aluminate and gallate spinels in (3) 57*j*.
B in, determination, effect of alkalimetric titration of mannitoboric acid complex (9) 199*d*; determination by atomic absorption spectrophotometry (9) 199*j*.
binder, P (5) 111*e*.
bio-, corrosion films, Auger spectroscopy (3) 55*b*.
blades, P (5) 112*b*.
blowing, reducing energy in exhaust gas, P (1) 15*c*.
bodies, coated with multilayer protective films, P (5) 112*b*.
crystallized, with marblelike appearance, P (1) 14*b*.
with fluorescent pattern inwardly of surface, P (7) 161*e*.
machinable hydrothermally crystallized, P (3) 61*d*.
surface crystallized, P (1) 15*f*.
treating, P (7) 163*e*.
borate, B sites in (1) 10*c*.
high elastic modulus, P (3) 61*j*.
and silicate, oxidation state and optical absorption of Rh in (5) 108*i*; silicate, and phosphate, uv electron transfer spectra of metal ions in (7) 156*g*.
structure, study by Raman scattering (3) 59*d*.
borophosphate, with high water resistance and low softening point, P (5) 111*e*.
structural transformation in, NMR (5) 110*i*.
borosilicate, and aluminosilicate, structure differences study by Raman scattering (7) 160*a*.

Glass borosilicate *(continued)*
B minerals in batch (3) 55*d*.
chemically vapor-deposited films, H_2O adsorption in (1) 13*e*.
density and refractive index, relation to structure (9) 199*i*.
electric melting, day-tank operation (3) 56*b*.
electrical resistivity (3) 57*i*.
films, negative differential resistance in (9) 199*g*.
He, deuterium, and Ne migration in (9) 200*i*.
Na diffusion in (7) 158*d*.
P (5) 111*e*.
refractive index and density (3) 59*e*.
relaxation of thermal stress in (5) 144*j*.
structure, Raman scattering (7) 159*j*.
volatilization of B_2O_3, effect of charge composition (5) 105*f*.
bottles, blown, with ribbed interior surface, P (9) 204*e*.
coating, P (9) 204*h*.
colored, light-protective and technological properties (1) 8*d*.
cutting, P (1) 14*b*.
flame-electrical founding (5) 106*e*.
shatterproof, P (3) 62*e*.
soda-lime, chemical durability and surface composition (7) 156*i*.
bubbles, gases in, KhL-69 chromatograph for analyzing (9) 203*d*.
bulk modulus, shear modulus, and Poisson's ratio (1) 5*f*.
B-Zn-Pb, etching in acetic and nitric acids, kinetics (9) 201*d*.
B_2O_3, dry and wet, vol. relaxation (9) 203*g*.
and Na borate, He diffusion and solubility in (7) 156*a*.
thermal expansion (1) 12*c*.
B_2O_3-Pb-Al_2O_3, phase separation in, small angle X-ray scattering study (7) 159*d*.
calumite slag in, as raw material for increasing furnace melting rates (9) 199*j*.
Ca metaphosphate, crystallization (1) 6*a*.
Ca phosphate, X-ray induced photoelectron spectroscopy (1) 13*g*.
Ca-rich, Na and K in, flame-photometric estimation (1) 8*h*.
carriages, running on fixed guide track, P (7) 163*c*.
casting, dieless continuous, stream formation in (1) 11*a*.
catalyst supports, microporous, P (3) 62*j*.
cathodoluminescent, Mn-activated, P (9) 204*f*.
cellular, acid- and heat-resistant mortars for, P (9) 204*b*.
from low-melting clays (9) 202*b*.
$Ce(PO_3)_3$, Faraday rotation in, at liquid-He temp. (7) 157*a*.
ceramic material, P (7) 161*e*.
and ceramics, bibliography, B (7) 189*h*.
Ce-Ti in, yellow color (9) 199*a*.
chalcogenide, crystallization, X-ray diffraction (1) 13*g*.
with optical memory effects, P (5) 111*f*.
with Si-containing layer, P (1) 13*i*.
structure, relation to statistical aspects of switching (1) 11*d*.
thermally resistant (1) 12*e*.
threshold voltage and channel formation in (1) 12*g*.
charge, granulation and briquetting, in mfg. green bottles (9) 200*f*.
chemical polishing, absorber for neutralization of acid fumes emitted during (1) 5*i*.
coating, electrically insulating, P (7) 161*j*.
glass fiber elements, P (9) 204*j*.
on metal wires, P (7) 162*f*.
P (5) 111*g*.
spray-forming, on concrete blocks, P (9) 206*f*.
coating on, nonstick, P (7) 162*c*.
coatings, bonding, or encapsulation, P (5) 127*a*.
protective, for semiconductor element, P (5) 113*h*.
colored, compositions, P (3) 60*d*.
P (5) 111*h*.
transparent articles, P (1) 13*i*.
coloring, by rare earths (7) 155*h*.
and strengthening, P (1) 13*j*.
composite coating, for integrated circuit protection, P (9) 204*j*.
composition, continuous change in glassmaking process, P (3) 60*e*.
of nonlinear resistance surge arrester disk collar, P (9) 205*j*.
P (1) 14*h*; P (3) 61*c*; P (9) 205*a*.
for photochromic and fluorescent articles, P (3) 62*f*.
sealing, P (3) 62*e*; sealing, surface having, P (3) 62*h*.
transparent low-thermal-conductivity, and lamp envelopes from, P (1) 14*j*.
conducting (5) 108*c*.
conductive coating for, P (5) 111*j*.
conductive layer, on oxide-containing surfaces, P (1) 14*e*.
conduit, for electrical conductor, P (1) 14*i*.
containers, with antifriction films (3) 57*h*.
chemically strengthened by ion exchange (5) 105*c*.
coated, surface strength (1) 12*d*; coated with plastic containment film, P (1) 14*i*; coated, P (3) 60*c*; coated, P (5) 111*f*.
coating, P (9) 205*g*.
commercial, flaking (7) 157*a*.
composite, P (9) 204*i*.
curable decorating systems for, P (1) 14*b*.
detecting strain and foreign matter in, P (9) 204*c*.
for drugs (7) 157*i*.
with hot-end coatings deposited from $SnCl_4$ (1) 11*b*; hot-end coating, P (7) 162*c*.
internal pressure strength (5) 107*j*.

Glass containers *(continued)*
lightweight, development in Europe (5) 107*f*; lightweight (9) 201*f*.
with plastic wrapper, P (9) 205*a*.
plastic-coated, P (5) 113*f*.
preparation of granulated charge (3) 58*f*.
surface-treated, P (1) 15*g*.
three-layer coating on, P (3) 62*j*.
containing rutile fibers, P (1) 14*b*.
containing SiO_2, Ta_2O_5, and Na_2O, P (9) 205*g*.
containment coating, composition, P (7) 161*g*.
cooking appliance, electrical, P (9) 204*d*.
core, for fiber optics, P (5) 112*a*.
Corning, SiO_2 and TiO-SiO_2, crystallization (3) 56*b*.
corrosion, and durability (7) 155*c*.
crack propagation, as interpretation of static fatigue (7) 155*e*.
crown, chemically hardened spectacle, P (9) 204*f*.
crystal-, transition, effect on state of impurity tin atoms in chalcogenide semiconductors (3) 57*d*.
crystalline, low-melting, for glass-glass or glass-metal seals, P (7) 162*g*.
crystallizable, for fibers, P (5) 112*b*.
P (9) 204*a*.
crystallization, DTA to study (1) 5*b*.
effect of alkaline earths (1) 7*d*.
crystallized, article with surface pattern, P (9) 204*b*.
P (7) 161*i*.
partially, for printing dielectric layers, P (9) 206*a*.
by using Shirasu volcanic ash (9) 199*f*.
-crystal mixtures, percentage of crystallinity, by solution calorimetry (9) 200*a*.
Cs silicate, hydrolytic resistance (7) 157*e*.
Cu-As-Se, density and microhardness (1) 6*f*.
sensitivity of photo-darkening effect in (1) 11*g*.
cullet, recovering, P (3) 62*c*.
cut, decolorization by oxides of rare earth elements (9) 199*h*.
cutting, P (3) 60*g*; P (5) 112*b*; P (5) 112*d*.
cutting fluid, P (3) 61*d*.
cylinder, hollow, of vitreous SiO_2, P (1) 14*f*.
C89-2, melting in electric arc furnace, and mechanized drawing of pipes (9) 202*a*.
decorating defects (3) 57*h*.
decoration, P (5) 112*c*.
definition, correction (3) 58*f*.
for delay lines, ultrasonic, heat-treatment for reducing variation in delay time, P (5) 113*c*; ultrasonic, P (7) 162*a*; ultrasonic, P (9) 205*f*.
delivery, for press forming, P (3) 61*d*.
dielectric, applying to glass substrate, P (3) 60*a*.
composition, P (3) 60*h*.
high, for high-voltage ceramic capacitors, P (1) 14*d*.
P (5) 112*d*.
disintegrated, by action of water, P (5) 112*h*.
dissolution, effect on corrosion measurements (9) 200*d*.
E-, surfaces, interaction with vinyl trichlorosilane and water (7) 157*i*.
elastic properties, effect of structural relaxation (9) 200*e*.
electrical conductivity, with wide distribution of activation energies (5) 110*h*.
electrically insulating, P (5) 112*f*.
electrical properties, review (3) 57*b*.
electronic-conducting, and alkali-containing, absorption current characteristics between (1) 6*c*.
electronic conduction in, and ionic, correlation of dielectric dispersions with (1) 6*h*.
for electronics (9) 217*e*.
electrons in (9) 200*g*.
embossing in, P (9) 204*e*.
enamel medium, P (9) 205*a*.
entropy, effect of mechanical and electrical stresses (1) 7*h*.
Eu^{3+} in, emission characteristics, temp. dependence (1) 12*i*.
fabric, knitted, composite structures, P (5) 111*i*.
Faraday rotation, P (5) 112*g*.
feldspar, moisture expansion (1) 9*j*.
FeO-$K_2O_{P_2}O_5$, as source of micronutrient iron in soil (3) 57*d*.
xFe_2O_3, (1-x)[$BaO.4B_2O_3$], magnetic properties and structure (5) 107*j*.
Fe silicate, electrical properties, effect of memory (5) 106*a*.
fictive temp., dependence on cooling rate (3) 56*d*.
films, switching in (9) 203*c*.
(Se,S)-based chalcogenide, for holographic supermicrofiche (5) 109*g*.
fining (1) 8*h*.
by flame, P (3) 60*j*.
flat, conditioning for removal from supporting liquid, P (5) 111*i*.
formed on molten tin, improving quality, P (5) 113*e*.
improving quality, P (9) 205*i*.
inspection system, P (5) 112*i*.
P (3) 61*a*; P (5) 112*i*; P (9) 204*g*.
shipping container, P (7) 161*b*.
tempering (5) 110*f*.
thermal-stress analysis, with temp. dependent thermal conductivity (1) 12*d*.
float, Auger electron spectroscopy study of surfaces (1) 5*d*.
colored, P (9) 205*g*.
electrically modified, P (1) 14*d*.
nondestructive analysis by neutron activation (1) 18*j*.
P (3) 61*a*.
and sheet, slow crack propagation in (1) 11*h*.
surfaces, chemical characteristics (7) 155*f*.

Glass *(continued)*
flow, homogenizing action, "refining number" for (7) 155*d*.
fluorophosphate, P (9) 204*g*.
pseudobinary, electrical properties (5) 106*f*.
foam, objects, shaping, P (9) 205*i*.
P (7) 161*b*.
foamed, for low-cost solar reflectors (9) 201*h*.
P (7) 161*c*.
foam elements, syntactic, P (5) 114*e*.
forming, rate of heat liberation by crystallization as resistance to (7) 159*i*.
-forming liquids, nucleation kinetics and critical cooling rate (1) 10*j*.
-forming materials, P (3) 83*c*.
-forming mixture, with B, for conductivity zones in semiconductor bodies, P (5) 127*a*.
fracture, experiments (5) 104*g*.
thermally activated, discussion (7) 156*e*.
frit, containing Pb ruthenate or Pb iridate, P (7) 161*i*.
high-SiO_2 Li_2O-Al_2O_3-SiO_2 devitrified, cristobalite suppression in, P (7) 161*i*.
low-melting protective layers, P (9) 205*b*.
P (9) 205*d*. P (5) 104*a*.
Ge-GeO_2, phase separation in (1) 10*e*.
GeO_2, single bond strength for (1) 11*h*.
GeO_2-SiO_2, formation of coesite from (3) 57*g*.
germanate, borax, and phosphate, optical properties of Bi in (1) 10*c*.
Nd ion environment in (1) 10*d*.
Ge-Te, electrical conductivity (1) 7*d*.
and Ge-Te-Si, Mn^{2+} in, ESR study (1) 8*c*.
glare-reducing, P (5) 112*a*.
for glass articles, tempered (3) 58*h*.
and glass-ceramics, P (5) 113*a*.
glazing panel, with conductive strips, P (1) 14*c*.
glazing unit, double, acoustic and thermal insulation, gas filling effect (1) 7*g*.
P (1) 14*c*.
gob, molten, distribution system, P (5) 113*b*.
gold-colored, decorative, P (3) 60*g*.
grinding, determination of diamond concentration for (7) 149*e*.
ground, joints, diamond tools in polishing (3) 59*i*.
hard, of high strength, P (3) 61*j*.
hardener, solid carbon fuel, P (9) 206*f*.
heat-absorbing, P (7) 162*a*.
heat-resistant, free of B and alkalis, and uses (7) 155*i*.
high-melting, opaque fused SiO_2, or transparent fused SiO_2, tubular members, P (7) 163*e*.
high-strength, made by ion exchange, P (9) 205*h*.
in high temp., estimation of severity of work place (5) 106*b*.
high translucency, and ionic conductivity, P (3) 61*e*.
hollow, prefabricated wall element, P (3) 61*a*.
homogenizing, increasing rate (1) 9*g*.
hot, ribbon, laser beam for cutting, P (5) 113*f*.
hot band, cutting, P (5) 112*c*.
impact resistance, improving, P (9) 205*i*.
as impurity in, extraction-photometric estimation (3) 57*c*.
inclusions in, invisible (7) 158*b*.
industrial, in Na-Ca-Si system, mechanical resistance and microhardness (3) 56*b*.
industrial wastes in (1) 13*b*.
inhomogeneity (3) 57*i*.
inorganic, hydrophobic, P (3) 61*a*.
rheometry (1) 11*f*.
solubilities and diffusion coeff. of inert gases in (9) 203*f*.
structure, effect on temp. dependence of sound velocity (9) 201*j*.
superstrength and high-strength, B (9) 244*d*.
inspection, lighting for (3) 57*i*.
insulating, improvement in acoustic damping by filling with gas (1) 8*h*.
interdiffusion in (1) 9*b*.
ion-exchanged, stresses in, finite element analysis (3) 57*f*.
surface properties, use of acoustic surface waves in study (7) 179*e*.
ion exchange in, kinetic aspects (9) 201*b*.
kinetics (7) 158*d*.
ionic diffusion in, review (3) 57*h*.
ir transmitting layer in, P (7) 161*c*.
K borophosphate, coordination of B in, Raman spectroscopy (5) 110*a*.
K Pb phosphate, Raman spectroscopy (5) 109*a*.
K_2O-SiO_2, and K_2O-SiO_2-TiO_2, Raman spectra (3) 59*b*.
K_2O-SrO-SiO_2, elastic properties, energy of chemical bonds, and electrical conductivity (3) 56*h*.
laminated, assemblies, P (9) 205*j*.
laminates, bonded with ethylene copolymers, P (5) 112*h*.
subsurface-fortified, P (9) 206*g*.
Li aluminosilicate, ceramming, study by positron annihilation (5) 104*i*.
light-conducting, structures, P (7) 162*f*.
light-sensitive, reversible, P (7) 162*i*.
Li metaphosphate, internal friction, effect of dissolved heavy H_2O (1) 7*e*.
in liquid state, relation of nature of viscosity change and near annealing temp. (3) 59*f*.
Li Zn borosilicate, sealing material, P (3) 61*d*.
Li_2O-SiO_2, articles, for Faraday rotator device, P (7) 161*a*.
crystallization by positron annihilation (3) 56*a*.
Li_2OZnO-SiO_2, crystallization, effect of K_2O and P_2O_5 (3) 57*d*.

Glass *(continued)*
$Li_{22}O.Al_2O_3.nSiO_2$, low-temp. specific heat (9) 201*h*.
low dielectric constant (1) 10*h*.
low-melting, P (9) 205*b*.
lubricant, for hot-pressing metals and alloys, P (9) 205*e*.
for hot-working alloy steels, P (5) 112*h*.
magnetic, P (1) 14*h*.
marbled, mat glazes for (1) 23*i*.
material, with switching effect, P (3) 61*e*.
materials, molten, refining, P (5) 113*j*.
for plumbites and cellulosics, P (5) 113*b*.
$MBi_2Ge_2O_8$, M = Zn, Cd, Ca, Sr, Pb, and Ba, new host for growth of garnets, spinels and related phases (3) 57*j*.
of melilite series, hydraulic activity (1) 8*g*.
-melting, adhesion to metal seals, role of added metal oxide (3) 59*g*.
British pot melting practice (1) 12*f*.
chemical transformations in 2-component mixtures containing La oxide (1) 6*b*.
developments (7) 156*c*.
with diesel fuel (5) 105*h*.
electrically (5) 105*a*; electrically, problems (5) 109*g*.
improved, for bottles and jars (1) 8*i*.
problems (1) 10*i*.
and refining, P (7) 162*b*.
unconventional method (5) 111*a*.
volatilization of components during (1) 13*d*.
melts, corrosion resistance of refractory shapes to (5) 121*c*; corrosion of Pt-Rh 90-10 alloy in (7) 155*c*.
mixtures stored in silos, effect of soda ash (3) 56*d*.
operational control (5) 108*c*.
optical spectra, electrical conductances, densities, and viscosities (5) 108*f*.
properties, one- and two-component oxide nonsilicate systems, B (3) 96*b*.
refining (1) 11*b*.
study by high-temp. transpiration apparatus (9) 200*j*.
transport behavior (7) 160*j*.
memory behavior, linear vol response in annealing region (5) 106*i*.
metalization, using ion injection (7) 158*b*.
-metal package, multilayer, P (7) 173*d*.
-metal reaction, in ac electric field (9) 200*e*.
metaphosphate, Pt in (1) 11*a*.
mfg., P (7) 162*g*; P (9) 205*c*.
Mg metaphosphate, crystallization, role of OH in (7) 159*j*.
$MgO-Al_2O_3-SiO_2$, phase separation, crystallization, and properties (1) 6*f*.
microhardness (9) 202*d*. scratching, and breaking (3) 58*c*.
microspheres, hollow, lightweight composite containing, P (1) 14*g*.
transparent, P (7) 163*d*.
microstructure (1) 9*j*.
microwave dish, surface chemistry, properties, and performance (7) 160*c*.
mineral, crack growth in (1) 6*h*.
mixed-alkali, heat capacity and structural relaxation (5) 107*b*.
review (1) 8*e*.
modern, theory and practice, B (7) 191*c*.
Mo in, absorption and emission spectra (7) 156*h*.
determination (5) 105*a*.
molten, corrosion of refractory materials by, bibliography (1) 5*f*.
impregnation of porous iron compacts with (3) 65*g*.
measuring temp. (1) 9*d*.
preventing flooding surface with, P (5) 113*g*.
removing gaseous inclusions from, P (7) 162*h*.
solution rates of refractory raw material contaminants by (3) 59*j*.
Na aluminosilicate, optical properties of Eu^{3+} in (3) 58*i*.
Na-Ba, and Na-La, reaction of H_2O molecules in (5) 109*e*.
tempered kitchen utensils, glazing (5) 110*d*.
Na borosilicate, for dielectric optical waveguides, P (9) 206*f*.
leached, phase-separated, pore structure (7) 159*e*.
phase separation near spinodal boundary in, electron microscopy (7) 156*f*.
surface crystallization phenomena (3) 59*d*.
Na silicate, nucleation rate of crystal needles in (5) 110*e*.
Na trisilicate, of varying water content (7) 159*g*.
viscosity and thermal expansion, effect of H_2O (9) 201*e*.
$Na_2O-B_2O_3$, heat of immersion, in butylamine-cyclohexane solution (5) 107*e*.
$Na_2O-CaO-SiO_2$, chemical durability in acid solutions (7) 155*g*.
$Na_2O-H_2O-P_2O_5$, internal friction (3) 57*e*.
$Na_2O-P_2O_5$ melts, ferric-ferrous ratio in (1) 8*f*.
$Na_2O_3-Al_2O_3-SiO_2$, chemical durability in relation to membrane potentials (7) 155*g*.
Nd^+ in, emission characteristic (1) 6*e*.
for negative resistance devices, P (5) 112*h*.
nitrate, structure of Nd^{3+} terms in (9) 203*a*.
NMR line shapes in, nonzero asymmetry parameter (1) 5*h*.
nuclear waste in, high level, fixation for disposal (7) 173*f*.
objects, molding, P (9) 204*d*.
strengthening, P (9) 206*b*.
obsidian, chemical and physical properties (1) 6*a*.
opacifiable, thermally, P (3) 62*j*.
opacified, articles, P (5) 113*d*.
opal, coated article, P (5) 111*h*.
phase-separated, improving opacity (3) 57*a*.
reduction of F loss during production (3) 59*c*.
spontaneous, P (3) 62*g*.

Glass *(continued)*
opalescent article, P (1) 14*j*.
opaque, new compositions (3) 56*g*.
ophthalmic, compositions, P (7) 162*d*.
optical, acousto-, systems, and Tl_3AsS_4 crystals, P (3) 62*a*.
attenuation measurement by immersion method (5) 104*a*.
Ba flint, P (1) 13*g*.
borate, of high chemical resistance, P (5) 113*d*.
chemical attack of surface by formic acid vapor (7) 155*f*.
composition, computers to calculate (1) 13*a*.
corrosion and wetting of Pt by (1) 6*h*.
eccentric-core waveguide (9) 200*b*.
elements, P (5) 113*e*.
fluorescent, casting, P (9) 204*f*.
highly refracting, P (1) 14*e*.
high-index, P (3) 61*j*.
improving mechanical strength by tempering (3) 57*c*.
lens, grinding wheel for forming facet on periphery, P (3) 49*e*.
lenses, glass clad, P (1) 14*h*; lenses, molding, P (3) 61*i*; lenses, diffused graded index, refractive index profile (5) 109*j*; lenses, Einzel (9) 201*b*.
light scattering by (3) 57*h*.
low-loss, attenuation measurement in (5) 104*i*.
memories, oxide, photochromism and index change (7) 159*a*.
mirror, lightweight, P (1) 14*g*.
P (5) 113*e*; P (7) 162*d*; P (9) 205*j*; P (9) 206*a*.
photochromic multifocal, P (3) 62*a*.
physical properties, as function of cation size (3) 58*b*.
postirradiation alkali migration (1) 10*h*.
P; wave guides, P; wave guides, planar, P (5) 113*f*.
transmission modulation by acoustoelectric domains in CdS (3) 90*e*.
optical basicity, behavior of basicity indicator ions in relation to (7) 154*g*.
oxide, As-containing, Raman-scattering measurements (1) 44*e*.
dielectric relaxation in, measurement by absorption current method (5) 108*c*.
diffusion process in, based on electric conduction and dielectric relaxation (3) 55*h*.
films, memory switching in (3) 74*d*.
ionic diffusion in, B (3) 94*g*.
nephelauxetic effect by Sn^{2+}, Sb^{3+}, Tl^+, Pb^{2+}, and Bi^{3+} (1) 6*i*.
reactions on (5) 109*f*.
vibrational spectra (5) 111*d*.
oxychalcogenide, As_2Se_3-based, electrical properties (1) 7*f*.
liquation in (5) 107*h*.
P (5) 113*a*; (9) 204*h*.
packaging, raw materials for, in Bulgaria (9) 199*b*.
panel circuit breaker, P (7) 161*j*.
panels, rigid fibrous, P (1) 15*d*.
passivated, gold diffused SCR pellet, P (7) 161*j*.
patterned, annealing, P (3) 60*g*.
on float ribbon, P (7) 162*g*.
Pb, refining in electric furnaces (9) 203*b*.
thermal expansion and viscosity (5) 110*h*.
Pb-Bi, for acousto-optic and magneto-optic devices, P (7) 162*f*.
Pb borate, crystalline, low-melting-point, P (9) 205*b*.
Pb crystal, Bohemian (1) 5*f*.
$PbO-GeO_2-WO_3$, optical and electrophysical properties (3) 58*f*.
$PbO-TiO_2-Al_2O_3-SiO_2$, $PbTiO_3$ forming from, microstructure development and crystallization kinetics (1) 9*h*.
Pb release from, in contact with acid solutions (7) 169*j*.
Pb silicate, containing Mn, spectrophotometric and magnetic studies (3) 59*j*.
Pd-Au-Si metallic, transformation behavior (1) 12*h*.
perforated, for TV picture display panels, P (1) 15*b*.
phase-separating, opacified, for continuous rolling (1) 10*j*.
phase separation (1) 8*g*.
phosphate, Ag-activated, composition of mixtures for melting, P (1) 13*j*.
compositions, P (9) 204*j*.
electrical properties (1) 7*g*; electrical conduction and dielectric relaxation in (3) 56*j*; electrical properties (5) 106*e*.
micronutrient metal-containing, P (5) 113*b*; micronutrient metal-containing, P (9) 205*i*.
Mn-activated, for dosimetry, P (1) 14*i*.
semiconducting, elastic properties (3) 56*i*.
synthesis, regions of formation, and properties (5) 110*d*.
varistor and dielectric properties (7) 160*a*.
phosphorus, ferrous Fe-containing, P (1) 14*d*.
phosphosilicate, vapor-deposited, vibration spectra (7) 160*c*.
photochromic, absorption spectra in, effects of crystal size, crystal composition, and irradiation conditions (3) 56*e*; absorption center induced in (9) 203*g*.
Ag-free polarizing, P (9) 206*e*.
changing tint, P (3) 60*c*.
fast-fading index-corrected compositions, P (9) 204*f*.
structural change of AgCl particles in (7) 159*h*.
photoconductive, P (9) 206*a*.
photosensitive, structural, mechanical, and chemical properties (5) 105*i*.
for phototropic thin layers, P (7) 162*a*.
physical properties, calculation (5) 104*e*.
piezoceramic material, P (3) 62*b*.
plate, degassing relations and equations for, in tank furnaces (1) 7*c*.

Glass plate *(continued)*
electroconductive, P (9) 204*d*.
interdiffusion of Na and K ions in, Nernst-Planck equation (9) 199*d*.
locally cooled, crack formation in (7) 158*c*.
strength, increased (1) 8*i*.
plates, glazed, strength, effect of thermomechanical stresses (1) 7*c*.
loose, handling, P (1) 14*d*.
stack, P (1) 15*c*.
polyvalent ions in, (Cr, Cu), optical and EPR studies on redox interactions (3) 58*g*.
porous, sintered, or heavily etched, to bind pH indicators (1) 11*f*.
powder, preforms, for components, P (9) 205*c*.
powders, sintering (5) 110*b*.
pressed, articles, cooling, P (9) 204*a*.
products, P (1) 14*a*.
pure, rf preparation, P (5) 113*i*.
Pyrex, zeta potential (7) 156*c*.
quartz, absorption spectra (1) 5*j*.
acoustic studies (5) 104*f*.
art and industry in (1) 10*i*.
composite body, P (5) 111*h*.
crystallization in different gas media (5) 105*h*.
diffusing ions into, P (9) 204*d*.
elements, P (5) 113*i*.
EPR study of structure (5) 106*a*.
hardening (9) 200*g*.
quartz for, deposits, mining, preparation, and properties (9) 202*g*.
quartz sands for (9) 202*h*.
rare earth elements in, pH adjustment during complexometric determination (5) 104*c*.
rare-earth ions in, phonon-assisted energy migration between (3) 58*a*.
rare earth oxides in, determination by complexometric method (1) 10*e*.
raw materials, algorithm for determining weighed portions (5) 104*h*.
anorthite as (1) 5*a*.
argillaceous, phase transformations during heating (5) 109*b*.
containing B_2O_3 (9) 203*a*.
of limestone and dolomite (9) 201*g*.
limitations and description (9) 201*g*.
magmatic rocks as (9) 201*j*.
processing, P (1) 15*c*.
razor blades, industrial process for, P (9) 205*j*.
reaction, with gaseous phases, study by photon emission (1) 9*g*.
recovery, from solid waste (1) 9*h*.
reflecting surface, heat exchange with flame, automatic control equipment (9) 200*i*.
-reinforced, polymer composites, P; thermoplastic molding material, P (5) 112*i*.
research, current trends (1) 6*c*.
at Government Industrial Research Institute, Osaka (1) 12*j*.
resistant to dishwashers, P (3) 61*e*.
ribbon, continuous, by flotation process, P (7) 161*b*.
on molten metal bath, P (5) 113*i*.
porous crystallized, P (7) 162*f*.
rods, strength, effect of surface defects (1) 7*i*.
roll, detection and reduction of bowing, P (9) 204*c*.
rolled, polishing (3) 58*c*.
roving, covered tubular package of, P (3) 60*g*.
Ruff (7) 155*j*.
safety, heat-reflecting laminated pane, P (9) 205*h*.
laminated, P (1) 14*f*; laminated, polyvinyl butyral composite interlayer for, P (3) 62*b*.
laminates, adhesion control for, P (1) 13*i*.
sands, spectrographic analysis (3) 80*j*.
sealant, P (7) 162*j*.
seal assembly, conductive, P (3) 60*e*.
for sealing, composition with uniform viscosity, P (1) 15*d*.
electroceramics, P (5) 112*i*.
heat-absorbing, P (3) 61*b*.
low-temp., P (1) 14*h*.
second harmonic coeff. in, electric field induced (5) 106*d*.
Se in, extraction-photometric estimation (1) 8*e*.
semiconducting, of As and Pb selenides (3) 59*h*.
electronic and structural properties (1) 8*a*. P (1) 15*e*; P (7) 162*j*.
semiconductive, Ag-containing, P (3) 62*e*.
shapes, fired construction, and binder for, P (9) 204*g*.
sheet, bending, P (1) 13*g*; bending, P (5) 111*d*.
bivalent and trivalent Fe in (1) 32*i*.
coating on both surfaces, P (9) 204*h*.
conveying, P (7) 162*j*.
cooling, P (7) 161*g*.
drying, P (5) 112*f*.
electrical network deposited on, device for testing continuity, P (3) 76*h*.
flat, tempering, P (3) 62*i*.
forming vessels from, P (7) 161*d*.
frangible, simultaneously breaking plurality, P (9) 206*e*.
granulated soda in (5) 111*d*.
heat treatment, P (7) 162*b*.
heat-attenuating, P (7) 162*b*.
heat-reflecting, P (1) 14*d*.
heat-softened, roll forming, P (5) 114*a*.
laminated material, P (3) 61*b*; for laminated panels, P (5)

Glass sheet *(continued)*
113*f*.
mfg. in Comecon countries, statistical review (3) 59*i*.
no-debiteuse mfg. (3) 58*e*.
optical properties (9) 202*h*.
P (9) 205*f*.
paired, maintaining in alignment during bending, P (3) 61*e*.
panels, P (7) 162*e*; panels with, P (9) 206*a*.
quartz, and soda-lime-silica, study by SAXS (1) 11*i*.
sputter-coating, P (7) 163*b*.
stacking station, removing broken-off chips from, P (1) 15*d*.
strengthening by ion exchange, P (5) 114*e*.
tempered, P (1) 15*g*; tempered, direct mfg. from ribbon, P (5) 112*e*.
tempering, P (3) 61*f*; tempering blasthead, P (5) 112*j*; tempering by heat of sublimation, P (5) 114*f*.
toughening, P (3) 62*a*.
treating, P (1) 15*g*.
ways to high-strength (9) 203*i*.
Si-As-chalcogenide, mechanical damping (1) 9*e*.
Si in, by atomic absorption spectrometry (7) 175*j*.
silicate, chemically resistant, P (7) 161*e*.
density fluctuations in (1) 6*d*.
devitrified, P (5) 112*d*.
electrical conductivity, effect of Al_2O_3 (5) 105*e*.
heat capacity, relation to concentration of WO_3 impurities (3) 59*e*.
high-modulus rare earth and Be containing, P (7) 162*c*.
hydration in aqueous solutions, P (7) 162*d*.
isotropic, elastic constants in, determination by Brillouin scattering (7) 155*i*.
and molten Pb, transport of Pb ions at interface between (3) 59*h*.
polymer mass distribution in (9) 202*a*.
Raman spectroscopy (9) 202*i*.
TiO_2-containing, ir absorption spectra (9) 201*f*.
with trivalent cations, properties and structure (3) 58*j*.
viscosity, B (9) 244*g*.
sintering, effect of forming pressure (3) 56*b*; effect of forming pressure (9) 200*c*.
SiO_2, element, P (7) 163*a*.
high-, P (5) 113*d*.
increase of annealing point on incorporation of C (7) 157*g*.
for magnetic heads, P (9) 206*d*.
using CO_2 laser (5) 109*f*.
-containing materials, coherent porous, P (7) 161*f*.
14 A tobermorite from (7) 157*d*.
SiO_2-$AlPO_4$, compositions, P (7) 163*a*.
SiO_2-Fe_2O_3-K_2O, inversion temp. of Fe-leucite crystals in (5) 107*j*.
SiO_2 in, determination in extract solutions (5) 105*a*.
SiO_2-Na_2O, neutron small-angle scattering study (1) 10*g*.
$70SiO_2$-$15B_2O_3$-$15Na_2O$, surface crystallization (1) 12*c*.
slag, ceramming (5) 104*j*.
hydration and hardening, effect of Al_2O_3, MgO, and MnO (3) 53*d*.
MgO blast furnace, system for ceramming (5) 105*c*.
soda-lime, domestic, static fatigue (7) 159*f*.
high-temp. viscosities (3) 55*e*.
light scattering measurements (1) 9*c*.
and Na silicate, electrode polarization (5) 106*g*.
subcritical crack growth in, load-relaxation techniques to study (3) 84*g*.
surface analysis (5) 110*c*.
tinted or colored, heat-protective, P (7) 162*b*.
X-ray fluorescence analysis (3) 59*a*.
soda-lime-silica, behavior in dilute acids (7) 158*a*.
melts, reactive vaporization (5) 109*h*.
second droplet phase in (5) 110*a*.
slow crack growth in, effect of phase separation (5) 106*b*.
stabilized or quenched, glass transformation in (1) 8*c*.
volatilization from (7) 160*e*.
soda-silica, and soda-lime-silica, aqueous corrosion (3) 55*j*.
solder, effect of Cu ions in (9) 203*c*.
grinding, P (3) 61*i*.
low temp., stress corrosion (7) 159*h*.
with refractroy filler, P (9) 206*f*.
specific heat, temp. dependence (9) 203*b*.
sputter-coated, P (5) 111*j*.
standard, NBS (9) 202*g*.
static corrosion, and static fatigue (7) 159*f*.
static fatigue in (5) 110*c*; (9) 203*h*.
stemware, one-piece, P (5) 113*d*.
stored radionuclides, behavior (1) 5*e*.
strains in, during forming (5) 110*e*.
strength, effect of surface treatment (3) 56*d*.
strengthening, articles, P (7) 163*b*.
by ion exchange, P (3) 62*h*.
ion-exchange, for glass fibers (3) 57*g*.
P (5) 114*e*.
by surface crystallization (1) 11*d*.
stresses in, during forming (3) 55*b*.
structural, shaped, B (7) 192*f*.
structural relaxation in, analysis using rate heating data (3) 55*i*.
structure, light-conducting, P (3) 61*c*.
strained mixed cluster model for (9) 203*j*.
substrate, multilayered photosensitive material with, P (5) 113*c*.
substrates, resist coating, P (7) 162*h*.

Glass substrates *(continued)*
thin surface layers on, study by ion-beam-induced radiation (7) 158*d*.
subsurface layers, structure (7) 160*b*.
sun protection, P (3) 62*h*.
support material, porous, P (1) 15*b*.
surface, adsorption of proteins on (7) 154*f*.
analysis, by Auger electron spectroscopy (7) 157*j*.
analyzing platelet deposition on (1) 32*d*.
applying inorganic Ti coating to, P (5) 111*c*.
characterization by electrical measurements (7) 157*a*.
cleaning formulation for, P (9) 204*g*.
conductive coating on, P (5) 111*j*.
defects, and effects on strength (7) 160*d*.
interdiffusion of H and alkali ions in (7) 157*j*.
leached, photoelectron spectroscopic study, correction (3) 56*a*.
light-scattering properties (7) 155*i*.
metallic coatings on, review (3) 58*a*.
Mg silicate hydrate film on (7) 157*e*.
particulate erosion at subsonic velocities (7) 159*a*.
properties, P (9) 206*b*.
rendering water repellent and dirt deposit resistant, P (9) 206*c*.
SnO_2 coatings on, ESCA examination (7) 157*a*.
temp., measuring during annealing, P (9) 205*d*.
treatment by ion exchange, P (1) 31*e*; treatment, P (5) 111*i*.
surface-devitrified, P (1) 15*f*.
synthetic, homogeneous crystallization (7) 157*c*.
system, albite-anorthite-diopside-$CaTiAl_2O_6$, crystallization (5) 108*h*.
As-S and As-Se, dynamic viscoelasticity (1) 7*c*.
As-Te-Ge, current-voltage characteristics (5) 105*d*.
As(Bi)-Sb-S-I, vitrification and current-voltage (5) 111*g*.
B_2O_3-ZnO-PbO, moisture resistance (9) 202*c*.
CaO-Al_2O_3-SiO_2, F content and properties, effect of OH^- groups (9) 201*c*.
CaO-MgO-Al_2O_3-SiO_2, transition temp. thermodynamics (1) 12*f*.
CaO-MnO-SiO_2, vitrification and crystallization capability (5) 111*f*.
GeSe-Te, magnetic susceptibility (3) 57*j*.
Ge-As-Se, anomalous density variations (1) 5*j*.
iron-soda-silica, formation in (7) 157*j*.
K_2O-B_2O_3 and KF-B_2O_3, viscous behavior (7) 160*c*.
K_2O-SrO-SiO_2, viscosity (9) 203*e*.
Li_2O-CdO-SiO_2, crystallization (7) 155*g*.
Li_2O-K_2O-TiO_2-SiO_2, structure, and NMR spectra of ^7Li (3) 58*d*.
Na_2O-As_2O_3, properties and structure (3) 58*i*.
Na_2O-B_2O_3, optical basicity in (7) 156*j*.
Na_2O-TiO_2-SiO_2, with Na^+ partially replaced by Ag^+, X-ray diffraction (1) 13*e*.
PbO-B_2O_3-V_2O_5, mechanical properties during crystallization (5) 108*e*.
PbO-SiO_2, cation-O ion interaction parameter in (5) 104*f*.
PbO-SiO_2 and Na_2O-PbO-SiO_2, radiation centers of paramagnetic and optical absorption in (5) 109*d*.
$2PbO.SiO_2$, silicate groupings in (9) 203*d*.
R_2O-SiO_2 (R = alkali), heats of solution (9) 200*h*.
SbSI-GeS_2 (5) 107*a*.
Sb-S-I, trapping levels in (5) 111*a*.
SiO_2-$Ba_2Si_3O_8$-$BaAl_2Si_2O_8$, equilibrium relations in (7) 156*i*.
SiO_2-B_2O_3, refractive index behavior and energy gap (7) 154*h*.
SiO_2-B_2O_3-Al_2O_3-MgO-Na_2O-K_2O, melting behavior (1) 12*h*.
SiO_2-B_2O_3-Al_2O_3-RO-R_2O, formation and crystallization (1) 12*g*.
SiO_2-B_2O_3-Al_2O_3-R_2O, ^{11}B and ^{27}Al quadrupole interactions in (9) 199*f*.
SiO_2-metal oxide, empirical Gibbs energy relation for immiscibility in (9) 200*h*.
SiO_2-Na_2O-K_2O-Al_2O_3-B_2O_3-PbO, viscosity temp. relations (9) 203*f*.
Te-Se-Sb, photoconduction (1) 43*e*.
TiO_2-SiO_2 (7) 154*j*.
V_2O_5-BaO, V_2O_5-As_2O_3, and V_2O_5-PbO, electrical measurements (3) 57*a*.
Y_2O_3-SiO_2-Al_2O_3, refractive indices in (5) 110*a*.
technology, recent developments, B (7) 190*f*.
tellurite, calibo, and phosphate, optical intensities of Ho in (7) 158*i*.
photochromic effect in (7) 159*b*.
temp., in forehearth, controlling, P (3) 60*f*.
tempered, articles, glazes for (3) 58*h*.
tempering, P (9) 206*h*.
system, P (1) 14*a*; system, P (5) 112*j*.
testing, use of microhardness in (3) 58*a*.
thermal expansion, by measurement of birefringence in seals (5) 105*a*.
thermally crystallizable, possessing precision controlled crystallization and flow properties, P (7) 163*c*.
thermal properties, changes in Ge coordination number and energy relations in alkali germanate crystals (5) 110*i*.
thermal stability, temp.-viscosity factors in controlling (9) 203*c*.
for thermal tempering, P (5) 112*j*.
in thermos flask, formation of flakes in (9) 200*j*.
thin films on, analysis by nuclear techniques (9) 199*b*.
TiO_2, with high index of refraction and high dispersion, P (9) 206*h*.

Glass TiO2 *(continued)*
and Li_2O, thermal conductivity (1) 12*b*.
TiO_2-SiO_2, absolute thermal expansion, by ultrasonic method (3) 56*g*.
top plate, for cooking ranges, P (9) 206*i*.
for electric or gas ranges, P (1) 14*b*.
toughened, P (5) 114*g*.
toughening, P (1) 15*g*; P (9) 205*f*.
transition metal phosphate, thermodynamic predictions of reactions in (1) 47*c*.
transition temp., of organic solvent mixtures (5) 106*j*.
of polyethylene, effect of irradiation (3) 56*i*.
transparent, elements, P (9) 206*i*.
treatment, P (9) 206*i*.
TV, mixture for, P (5) 113*b*.
of two glasses, P (9) 205*d*.
ultralow-expansion, P (9) 206*a*.
untreated, photochromicity in, P (7) 162*h*.
U phosphate, visible absorption and fluorescence properties (3) 60*a*.
uranium, absorption capacity (5) 104*d*.
vacuum, stripping, P (3) 62*a*.
V binary, microstructural aspects, correlation with electrical measurement (3) 58*c*.
viscosity, in range $10\text{-}10^{14}$ (5) 105*c*.
visual dichroism in (3) 60*c*.
vitrifiable mixture for, P (1) 15*i*.
volcanic, interaction with CaO in presence of Na compounds (9) 201*g*.
in Shirasu, properties (5) 109*i*; in Shirasu, foaming characteristics (7) 157*b*.
soluble substances, and effect on activity of mineral additives (3) 59*j*.
V semiconductor, review (3) 59*j*.
Vycor (9) 200*j*.
V_2O_5-P_2O_5, structure and properties (1) 11*h*.
-ware, colored tableware, P (9) 204*i*.
fracture mechanics analysis of damage to (1) 8*i*.
P (5) 113*b*.
stemmed, P (9) 206*g*.
waste, as coarse aggregate for concrete (3) 60*d*.
industrial, new building materials containing (1) 10*i*.
as raw material for lightweight aggregate (7) 160*f*.
water absorption in, as precursor for foam formation (7) 154*f*.
water, wet preparation, from hull ash of Egyptian rice (9) 226*d*.
water in, direct determination (7) 156*d*.
water-leached, surface condition, study by H_2O vapor adsorption and surface electrical conductivity (1) 12*b*.
waveguides, microcapillary (9) 202*c*.
wear-resistant, P (3) 61*b*.
weathering, effects of humidity (7) 156*b*.
window, double-glazed, with very good thermal insulation (1) 7*b*.
drawn, optical test methods (5) 108*f*.
glare-reducing, and automotive window arrangement using, P (1) 14*e*.
Izovit, in Romania's industry (5) 107*c*.
laminated, for vehicles, P (7) 162*e*.
photomultiplier materials, under electron irradiation (3) 58*a*.
Young's modulus, calculation from chemical composition and density (1) 5*i*.
ZnO-Al_2O_3-SiO_2, crystal growth in (7) 155*e*.
ZnO-B_2O_3-SiO_2, coating compositions, P (3) 62*b*.
Glass-ceramic, surfaces, sealant for, P (5) 104*c*.
Glass-ceramics, articles, coloring, P (5) 111*h*.
exhibiting high frangibility, P (5) 112*c*.
exuded transition metal spinel films on, P (9) 204*f*.
high elastic modulus, P (1) 14*e*.
increasing mechanical strength, P (7) 162*d*.
with oriented mica crystals, P (1) 14*b*.
P (3) 61*g*.
with reflective surfaces, P (5) 112*c*.
Ba aluminoborosilicate, for semiconductor doping, P (9) 204*e*.
basalt (9) 199*h*; (9) 199*i*.
biocompatible, P (3) 60*b*.
bonding material, heat-devitrifiable, P (7) 162*b*.
CaO-Al_2O_3-SiO_2, microstructure and properties (9) 202*b*.
celsian, refractory, P (9) 206*c*.
colorless transparent, P (3) 60*e*.
commercial, strength-size relations in (5) 110*f*.
containing rutile fibers, P (1) 14*b*.
containing SiO_2, Ta_2O_5, and Na_2O, P (9) 205*g*.
cordierite, formation, effect of CeO_2 on phase transition processes during (3) 56*a*.
highly sintered monomineral (1) 8*f*.
of MgO-ZnO-Al_2O_3-SiO_2 system, thermal equilibria and ceramic properties (1) 12*b*.
with nucleating agent, P (7) 161*h*.
sintered, P (5) 114*c*.
crystallizable, P (9) 204*a*.
crystallization, effect of additives (5) 106*c*.
dopant, doping semiconductor with, P (1) 14*c*.
for doping, semiconductor, P (9) 204*j*.
ferroelectric, transparent, pyroelectric response in (1) 27*c*.
in fission products (7) 173*d*.
fluoromica-based, P (5) 112*j*.
from fly ash, of heat and electric power plants (9) 200*c*.
and glass, P (5) 113*a*.

Glass-ceramics *(continued)*
Hercuvit material (3) 57*a*.
industrial wastes in (1) 13*b*.
for ir telescope (9) 200*d*.
keatite-phase, low-temp. specific heat (9) 201*h*.
laminated articles, P (7) 161*f*.
laserable articles, transparent, containing Nd, P (5) 114*h*.
Li aluminosilicate, fatigue resistance (3) 57*c*.
Li disilicate, strength and microstructure (1) 11*c*.
low-expansion, P (9) 205*a*.
materials, for condensers, P (3) 61*g*.
P (5) 112*c*; P (7) 161*f*; P (9) 204*i*.
resistant to Na vapor, P (5) 112*d*.
metal-coated, P (1) 28*i*.
P (1) 14*b*.
photosensitive, structural, mechanical, and chemical properties (5) 105*i*.
product, P (7) 161*g*.
raw materials (5) 109*e*. cheaply available natural (9) 202*e*.
recuperator, P (5) 112*d*.
refractory, P (3) 62*d*.
semiconductive, P (5) 114*b*.
shaped bodies, P (9) 206*d*.
sintered, in MgO-Al_2O_3-Fe_2O_3-SiO_2 system (9) 239*a*.
with SiO_2 fibers, P (7) 161*g*.
slag, chlorine in (1) 6*h*.
mat glazes for (1) 23*i*.
stain-decorated, article, P (7) 163*b*.
strengthening, differential densification, P (5) 112*e*.
system, SiO_2-Al_2O_3-Li_2O-MgO-ZnO, thermal stability (3) 59*g*.
testing, use of microhardness in (3) 58*a*.
vitroceramics, P (9) 206*b*.
watch dials, P (9) 204*i*.
Glass industry, automation in (9) 199*f*.
Canadian, in energy critical times (3) 55*f*.
container, of Czechoslovakia (5) 105*g*.
in Europe, automation (9) 203*d*.
quality management in (5) 109*b*.
development, as utilitarian and artistic, B (3) 94*a*.
energy conservation in (3) 81*a*.
energy for (1) 8*b*.
in Finland, from 1681 to 1850's (3) 49*j*.
flat, cold end automation in (9) 199*b*.
fuel conservation in (3) 78*d*.
future (5) 106*g*.
Glass Division, role in American Ceramic Society (9) 200*d*.
heat stress, measurement, experience, and legislation (3) 78*e*.
history, in U.S., B (7) 190*e*.
plate, Japanese (5) 106*c*.
pollution in, control, B (3) 95*b*.
quality control (1) 8*b*.
refractories in (1) 19*j*.
Sajoszentpeter, kiln development at (5) 107*c*.
tableware, towline handling system from Anchor Hocking (5) 108*b*.
TV in, for plant security and viewing processes (9) 203*d*.
worldwide, trends in (5) 111*j*.
Glassmaking equipment, for applying heat, to melt from above and below melt surface, P (9) 205*f*.
batch log control, P (1) 14*g*.
bending, sheet, P (1) 13*a*.
sheets, P (9) 205*e*.
and tempering thin sheets, P (7) 162*h*.
tube, P (3) 61*f*.
blowing, heat control at work place for operator (5) 107*d*.
blow molding, apparatus for tail removal in, P (1) 13*f*.
for biaxially stretched receptacles, P (1) 13*c*.
for blown plastic, articles, P (7) 161*b*.
for bottles, packaging, P (7) 161*d*.
transfer and coating, P (1) 13*f*.
bottle treating, controlling operating speed, P (1) 14*a*.
breakage detector, P (1) 14*g*.
for capping, cellular blocks for load-bearing insulation of gas storage tanks, P (9) 205*f*.
for cementing, in mfg. double-pane insulating units, P (7) 162*h*.
for cleaning, internally, vials, P (5) 112*c*.
for coating, articles, P (5) 113*g*.
glass filaments, P (7) 160*j*.
metal oxide, P (5) 113*h*.
P (1) 13*a*; P (9) 204*c*.
with Sn chloride, P (7) 162*i*.
by sputtering glass-ceramic plates and plastic panels, P (3) 60*h*.
ware, P (3) 60*h*.
for coiled capillary columns (3) 59*i*.
for containers, plastic-covered, P (1) 14*h*; plastic-covered, P (3) 61*d*.
control, for cyclic processes, P (9) 204*j*.
of flatness of sheet of flat glass, P (7) 161*b*.
of liquid level, P (7) 160*j*.
for controlling, orientation of newly formed continuous sheet, P (5) 111*b*.
conveyor rolls, on roll systems for roll forming apparatus, P (5) 112*a*.
for curving, sheet, in plastic state, P (5) 113*h*; sheet, P (7) 162*f*.
and tempering sheets, P (5) 112*c*.
for cutting, or marking out sheet, P (1) 14*c*.
P (9) 205*a*.
portions from one or more strands, P (9) 204*c*.
shapes out of sheets, P (3) 60*g*.
Glassmaking equipment for cutting *(continued)*
sheets from moving strip, P (7) 162*i*.
decorating, high-precision (1) 8*e*.
for detecting, defects or irregularities in sheet, P (5) 113*i*.
faults in containers, P (7) 160*j*; faults in sheet, P (7) 161*a*.
for drawing, fibers by fluid means, P (7) 161*a*.
ribbon, P (7) 162*b*.
sheet, P (5) 111*b*.
drive systems for, P (5) 112*e*.
for feeding, of batch, controlled, P (1) 14*a*; batch, P (7) 161*a*.
to glassmelting tank, P (7) 162*g*.
particles into crucibles for extrusion of glass filaments, P (7) 161*a*.
tubing to turret-type glass-forming machines, P (1) 14*c*.
for fibers, attenuated, P (5) 113*j*.
and environmental control for, P (1) 13*c*.
from molten glass, P (5) 113*j*.
P (1) 13*c*; P (3) 61*f*.
synthetic, nonwoven web from, P (1) 13*b*.
web, P (3) 61*g*.
for filaments, P (3) 60*i*.
for flat, including edge stretching apparatus, P (5) 111*a*.
P (7) 162*a*.
for float, forming chamber, control of thermal convection in, P (5) 112*a*.
float chamber, removable dam barrier for, P (5) 114*a*.
for flow, of high homogeneity in tank furnace, P (5) 113*a*.
forming, adjustable stroke invert drive motor for, P (3) 60*f*.
computer control for, P (1) 13*j*.
control system for mold cooling in, P (9) 204*j*.
efficiency and economics comparison (1) 5*j*.
on molten metal by using radiation reflector, P (5) 113*i*.
P (7) 161*i*.
forming station for, for forming hollow articles, P (7) 161*c*.
for gaging, bore in neck of bottle, P (3) 60*g*.
glazing, P (3) 61*i*.
gob feeder, P (5) 113*c*.
for grinding, and polishing beads and marbles, P (5) 113*h*.
handling, containers, P (7) 161*b*.
fragile sheets, P (3) 60*h*.
for hollow articles, P (1) 14*c*.
plate, P (1) 15*b*.
press molded hot ware, P (5) 113*g*.
ribbons, P (3) 61*f*.
sheet, P (7) 162*j*.
and treating, P (5) 113*b*.
handling tongs, P (3) 61*e*.
for hollow bodies, from glass tubes, P (1) 13*d*.
for laminated sheets, with thin wires, P (9) 205*g*.
for laminating, P (7) 162*g*.
lead edge stop, P (1) 14*g*.
lehr, overhaul saves gas and dollars (9) 201*e*.
sheet annealing, P (9) 205*f*.
for melting, P (3) 61*h*.
and refining, P (7) 162*a*.
for modifying flow, in refining zone of glassmelting tank, P (3) 61*f*.
for molding, articles under pressure, P (5) 112*d*.
continuous motion, with gob delivery, P (1) 13*j*.
P (7) 162*c*.
for molten, with batch guiding means, P (7) 162*a*.
P (7) 162*j*.
mounting, for crystalline rods, P (1) 14*j*.
neck ring cartridge for, P (5) 113*c*.
P (5) 111*b*.
for packaging, fibers, P (5) 111*c*.
strands into individual packages, P (1) 13*e*.
parison, engaging, severing, and stripping, P (3) 61*j*.
for preheating, vitrifiable batch, P (7) 162*a*.
for processing, batch material, P (3) 60*h*.
for pulsed swirling (1) 11*j*.
for regulating temp., in glass sheet float tank, P (5) 113*j*.
for repairing cracks, in plate, P (3) 61*h*.
for reshaping, or bending tubular envelopes of fluorescent lamp assemblies, P (3) 60*i*.
for ribbon, article forming on, and removal from, P (7) 161*e*.
movable dam barriers for use in, P (5) 113*c*.
roller, for drawing, P (7) 162*i*.
safety valve system for, P (5) 114*b*.
for scoring, flat strip or sheet, P (5) 112*d*.
sheet material, P (1) 13*e*.
for shearing, flowing molten glass, P (3) 60*i*.
gob, P (9) 205*d*.
and transferring glass charge, P (9) 204*d*.
for sheet, article transfer, P (5) 114*c*.
forming chamber, thermal control in, P (5) 114*f*.
giant, carrying frame for, P (3) 60*b*.
P (1) 13*b*; P (5) 113*g*.
SiO_2-coated rollers for supporting and transporting, P (1) 22*g*.
stacking, P (3) 61*f*.
supplying to processing machine in successive stacks, P (3) 60*j*.
supporting, shaping, and conveying, P (1) 14*a*; supporting rack, P (5) 114*c*.
treating, P (3) 60*a*.
for shipping, flat, without packing cases, P (7) 161*c*.
for spectrophotometric cells, P (1) 13*g*.
for spheres, P (1) 13*d*.
spinning, P (3) 61*i*.
for splicing, pairs of arrayed or individual fibers, P (3) 60*j*.
for sputter-coated ware, P (1) 13*b*.
for stabilizing movement, during advance along molten metal surface, P (5) 113*a*.
Glassmaking equipment for stabilizing movement *(continued)*
for stacking, sheet material, P (1) 13*f*.
for strand, wound packages, P (5) 111*c*.
stream feeder, for glass fibers, P (3) 62*g*.
support for bushing, for containing molten mineral material, P (3) 62*h*.
temp. control, P (5) 114*f*.
for tempered articles, P (7) 162*j*.
for tempering, curved sheets of plastic material, P (7) 161*c*.
for testing, bottles, P (1) 13*h*.
threshold for, positive containment, P (1) 15*b*.
tongs, for suspending, P (3) 62*a*.
for transferring, articles from conveyor, P (3) 61*h*.
for treating, vitreous surfaces, P (5) 111*b*.
-ware forming, individual section high-speed, P (3) 61*b*.
ware handler, automatic, P (1) 13*g*.
Glauconite, mineralogy (5) 142*e*.
origin (7) 182*g*.
Glazes, alkali-free, fine microstructure and properties, effect of cations (5) 123*f*.
B-Pb, low-melting, in multicomponent systems (3) 71*g*.
brown, glost-fire, for high-voltage porcelain (1) 22*f*.
chemical resistance (9) 194*d*.
colemanite, and Gerstley borate (7) 149*a*.
colors, release of Pb and Cd from (5) 124*c*.
compositions, novel, P (1) 24*e*.
conducting (9) 215*h*.
cone 6, oxidation (7) 149*a*.
crack formation in (3) 71*j*.
crawling, effect of ZnO (1) 23*e*.
crystalline, containing Ti and W (1) 22*j*.
crystallization, kinetics (1) 23*i*.
Cu red salt (7) 149*f*.
decoration, fired at high temp. (5) 123*a*.
dyes in, for decorative facade tiles (9) 215*g*.
effect, on mechanical properties of electrotechnical porcelain (7) 168*j*.
on strength of high-tension porcelain (7) 169*a*.
enamel, glass or ceramic, fusible charge batch for, P (1) 31*d*.
for facing tile (1) 23*b*.
faience, and china, stress inside, microscopic determination (9) 215*d*.
firing, wide-range (9) 193*j*.
gold, compositions, applicator for, P (7) 170*e*.
for insulation, of spark plug, P (5) 124*i*.
lead, and cadmium, international conference on foodware safety, B (7) 192*b*.
fritted, P (9) 216*a*.
interaction of dilute acetic acid with (5) 123*b*.
reducing acid lead solubility, P (1) 24*g*.
release by DIN 51 031 and amount absorbed by common foodstuffs (5) 122*j*; release from contact with acid solutions (7) 169*j*.
soluble, toxicity from domestic ceramic objects (3) 71*j*.
lead-free, for high-density Al_2O_3, P (5) 124*a*.
low-solubility, P (7) 170*g*.
low-temp., for facade tiles from rocks (5) 123*f*.
lustrous colored, P (3) 72*f*.
-making, ceramic, B (9) 242*f*.
mat, basalt-based (3) 70*i*.
for slag glass-ceramics and marbled glass (1) 23*i*.
microstructure, effect of Ca and Mg oxides (5) 123*j*.
of organic resin powders, P (5) 124*i*.
painting with (9) 193*g*.
perlite, for household ceramics (5) 124*a*.
porcelain-, abrasion resistance dependent on abrading material (5) 123*d*.
improving quality (3) 71*e*.
system, intermediate layer in, study by electron probe (5) 123*e*.
raku, crackling (7) 149*b*.
resistance, to acids, alkalis, and detergent solution (5) 122*f*.
scratch resistance, measurement (7) 176*f*.
segregating, for majolica, fine microstructure and properties (1) 23*e*.
semiconducting (3) 71*d*. composition, P (9) 216*e*.
for high tension ceramic insulators (3) 71*d*.
for high-voltage porcelain (1) 23*f*.
stoneware, properties (7) 169*f*.
Ti, low-melting, composition (5) 122*i*.
on tile, industrial application (9) 215*j*.
tin in, and Ca (7) 149*f*.
TiO_2-opacified (9) 216*e*.
toxic substances in, changes in regulations (1) 22*h*.
transparent, for facade coating of ceramics (9) 216*f*.
whiteware, nepheline syenite substitution for feldspar in (1) 23*a*.
zircon in, crystallization (1) 23*a*.
4-3-2-1 (9) 193*e*.
Glazing, dry (9) 215*a*.
of tile (5) 123*e*.
glass, tempered kitchen utensils (5) 110*d*.
P (9) 205*h*.
Glycine, tri-, sulfate, spontaneous polarization, effect of surface layers (1) 38*a*.
Goethite, crystals, acicular (5) 100*e*.
Gold, Au-Al_2O_3-Au structures, Cole-Cole diagram for (1) 38*g*.
balsam (3) 71*d*.
diffusion, in As_2Se_3 (1) 36*i*.
films, ultrathin, electrical properties during and after growth on glass (9) 217*b*.
on mica, adhesion (1) 26*f*.

Gold *(continued)*
thin film, resistance variation and field effects (9) 218*b*.
Grain boundaries, diffusion, and widths, in metals and nonmetals (9) 232*e*.
effect, on fracture behavior with MgO bicrystals (5) 137*e*.
in engineering materials, B (1) 48*h*.
model, formation by bonding two surfaces of Cu ferrites (5) 139*h*.
of Ni-Zn ferrite, shape change (9) 238*h*.
segregation, in Al_2O_3 (9) 232*f*.
Grain growth, phenomena, characterization during sintering of single-phase ceramics (5) 135*i*.
in refractory powders, inhibiting, P (5) 122*b*.
Granular materials, compaction, P (5) 130*j*.
dry free-running, consisting of $NaCO_3$ and NaOH, P (1) 34*g*.
fine, sintering or firing, P (5) 130*c*.
inorganic, moisture content measurement, P (5) 132*b*.
treatment, with gaseous fluid, P (5) 114*h*.
with sharp corners, feeding to conveyor pipeline, P (5) 130*j*.
Graphite, absorption, of N_2O (7) 182*i*.
articles, P (3) 69*c*; P (9) 213*d*.
reinforced with C fibers, P (1) 21*c*.
shaped, P (1) 22*f*.
ATJS, polyaxial stress-strain relations in (9) 237*g*.
bodies, coating with metals, P (1) 21*e*.
texture in neutron diffraction examination (1) 47*c*.
brazing, to graphite, P (7) 167*d*.
conductors, mixed, P (9) 219*h*.
crystals, basal plane surface, initial siliconizing on (5) 128*i*.
disks, determination of thermal diffusivity, capacity, and conductivity (1) 32*a*.
fine-grained, synthetic, P (3) 70*d*.
granules, with isotropic physical properties, P (1) 21*c*.
graphitization, of C fiber-glassy C composite (3) 65*h*.
graphitized blocks, oxidation (5) 118*f*.
impregnating, P (1) 30*i*.
Landau level structure, and magnetic breakthrough in (7) 183*a*.
layer, size and shape in C fibers (7) 164*j*.
low grade, of Palamau region, Bihar, beneficiation by flotation (9) 225*c*.
pyrolytic, chemical modification of surface, P (3) 69*f*.
C-axis spacing changes in, after neutron irradiation (5) 135*f*.
and natural, low-temp. microwave absorption in (5) 141*a*.
and poco, heat capacity, electrical resistivity and hemispherical total emittance (1) 18*g*.
SiC-coated, members, P (5) 122*i*.
wound C body, P (3) 70*e*.
Grindability, and mill control (1) 32*b*.
Grinding, grindability, determination (3) 80*d*.
Grinding apparatus, in cement production (1) 2*h*.
disk, P (3) 49*e*.
-drying, intensification with surface-active agents (5) 100*a*.
for granular grog (5) 118*c*.
for metallic molds, P (7) 175*g*.
P (1) 31*i*.
for plates, and dishes, finishing bases, P (5) 124*i*.
review (9) 221*a*.
wheels, abrasive cup, P (1) 1*f*.
blow molding for mfg., P (9) 212*d*.
bond strength, sonic test (9) 193*d*.
cutoff, of fused Al_2O_3-ZrO_2 alloy abrasive grains, P (3) 49*d*.
cutting capacity, measurement, P (1) 1*e*.
diamond, with Cu and SiC fillers, P (1) 1*g*; diamond profile, on cut glass (5) 97*b*; diamond abrasive, graphite containing metal bonded, P (5) 97*e*.
diamond, mounting assembly, P (9) 193*g*.
diamond for use with, P (9) 193*g*.
fine balancing (5) 130*a*.
for forming facet on periphery of eyeglass lens, P (3) 49*e*.
metal-bond, for vertical-spindle surface grinding (3) 49*c*.
mfg., P (9) 193*h*.
P (7) 149*h*.
profiled ceramic, P (5) 97*f*.
reinforced, P (7) 149*i*.
resinoid, P (9) 193*h*.
resin-bonded, P (5) 97*f*.
Grinding (comminution), agloporite, combustible, in jaw crusher (9) 221*e*.
aids (5) 98*a*. in cement industry (1) 3*g*.
Maveklin-KL, pilot-plant experiments (5) 99*a*.
Ba ferrite (7) 171*h*.
cement, effect of aids (5) 99*e*.
effect of aids on adhesive forces (5) 99*e*.
effect of aids on electric resistance (5) 99*g*.
experimentation with aids at Tatabanya, Danube, and Labatlan plants (5) 99*d*.
grindability testing and tube mill design for (5) 99*g*.
clay materials, P (7) 175*g*.
dry, cement raw materials and in clinker grinding (5) 102*f*.
of zircon in mfg. of dense products (5) 116*g*.
energy in (1) 30*h*.
fine, effect of stress rate (1) 30*g*.
kinetics, in vibrating mill (7) 174*j*.
plants, raw meal, for large throughputs (3) 52*j*.
wear in (7) 153*i*.
prolonged, changes in state of solids and mechano-chemical reactions in (9) 227*j*.
of refractories, baddeleyite-corundum (3) 65*h*.
Sc_2O_3, effect on compacting and sintering (1) 37*f*.
SiC refractories, effect of method and degree (1) 17*d*.
soft materials, mineral, efficiency in rotary mixer mill (9) 221*b*.
system, P (7) 175*i*.
Grinding (material removal), agent, P (5) 97*e*.
and polishing, mounting samples, P (3) 81*f*.
quartz, effect on thermoluminescence (5) 137*g*.
Grout, dark-colored, P (1) 3*j*.
Gypsum, alpha-hemihydrate, crystal growth by dehydration of dihydrate gypsum (7) 150*d*.
anhydrite conversion to, P (1) 34*j*.
binders, low water resistance (5) 98*i*.
by-product, in Florida phosphate operation (7) 178*e*.
calcination, P (9) 197*a*.
crystals, location of Na in (9) 195*b*.
by desulfurization, of flue gas, composites as construction materials (7) 151*b*.
effect, on properties of slag cement (3) 51*i*.
on strength and hydration of C_3S pastes (7) 151*e*.
hydrophobing, systematic experiments (5) 102*e*.
industry, atm protection in (7) 149*i*.
lumps, process and apparatus for, P (5) 102*f*.
morphology, chemical and mineralogical composition (9) 227*b*.
panels, acoustic-grade, reinforced and filled with basaltic glass fibers (9) 193*j*.
paste, and products, properties, effect of CO_2 (7) 151*c*.
phospho-, articles, one-step production (5) 100*g*.
dehydration (5) 98*i*.
as setting regulator during portland cement hydration (5) 100*i*.
plaster, and concrete, quality improved with Na-Al methylsiliconate (5) 100*g*.
quality, thermokinetic evaluation (1) 3*f*.
reaction, with Ca aluminates, DTA (5) 101*j*.
set, accelerator, P (3) 54*d*.
water resistance (5) 100*e*.
in SiO_2 hydrosol, new binding material (5) 99*i*.
SiO_2 in, P (7) 179*b*.
synthetic, and hydrates, study by proton magnetic resonance (7) 153*d*.
thermal analysis, by TG and DTA (9) 197*c*.
variations, and reactivity of product of calcination (5) 102*a*.

Hafnium, carbide, chemical vapor phase deposition (3) 85*a*.
high-temp. oxidation (1) 40*d*.
lattice parameters, X-ray diffraction (7) 185*a*.
dioxide, enthalpy of formation (5) 139*e*.
monocrystals, P (5) 128*f*.
progressive reduction by C (7) 185*i*.
metallic, and HfO_2, Moessbauer effect in (3) 90*d*.
molybdate, properties (3) 85*e*.
monochloride, synthesis, crystal structure, and thermal stability (1) 46*j*.
nitride, formation, in N and ammonia streams, kinetics (1) 41*e*.
oxide, interaction with Ln_2O_3, effect of degree of dispersion (5) 137*d*.
powders, phase stability in (5) 143*h*.
-Ta, directional solidification (5) 137*i*.
silicide, formation on Si, kinetics (7) 171*e*.
Halides, alkali, disks, reactions of $KMnO_4$ and KIO_4 in (7) 183*i*.
dislocation charge in, effect of color centers (1) 40*f*.
electrical conductivity (3) 87*b*.
mechanical treatment, emission of high energy electrons during (1) 38*b*.
microhardness and Schottky defects in (7) 184*b*.
thermal expansion (7) 188*e*.
Hall effect, of Al_2O_3, single crystals (3) 73*c*.
in Be, effect of magnetic breakdown (1) 37*e*.
coeff., in epitaxial layers of $Al_xGa_{1-x}As$ solid solutions (9) 232*f*.
studies of defect centers in Si (5) 137*c*.
of VC, as function of temp. and C concentration (7) 182*i*.
for defect study, in Y_2O_3 and TiO_2 (7) 188*e*.
in GaAs (9) 232*i*.
of $Ga_xIn_{1-x}Sb$ (1) 39*h*.
in Ho, single crystals (5) 135*h*.
mobility, of CdS films (9) 217*f*.
in NiO single crystals (1) 39*i*.
in polycrystalline materials (1) 39*h*.
Halloysite, definition, and nomenclature (7) 189*f*.
-kaolinite transformation, at room temp. (3) 88*d*.
Hardening, irradiation, of LiF single crystals (9) 230*e*.
refractory-Na silicate, mixtures, P (5) 122*a*.
Hardness, micro-, in alkali halides (7) 184*b*.
of Bi-Sb solid solution single crystals (5) 142*e*.
of ceramic oxide crystals (1) 46*h*.
of Cu-As-Se glass (1) 6*f*.
of glass (3) 58*c*; of glass (9) 202*d*.
of industrial glasses, effect of ion exchange 6(03) 56*b*.
use in testing glasses and glass-ceramics (3) 58*a*.
Health, foodware safety, international conference, B (7) 192*b*.
lead glazes, release by DIN 51 031 and amount of Pb absorbed by common foodstuffs (5) 122*j*.
toxicity from domestic ceramic objects (3) 71*j*.
SO_2, and NO_x reduction and removal from flue gas (3) 81*g*.
toxic metal release, monitoring dinnerware (9) 222*j*.
Heat, capacity, of Fe_3O_4 and $ZnFe_2O_4$ (7) 182*j*.
of glasses, mixed-alkali (5) 107*b*.
of graphite, poco and pyrolytic (1) 18*g*.
of $Li_{0.5}Fe_{2.5}O_4$ and $Li_{0.5}Al_{2.5}O_4$ (7) 182*j*.
Heat capacity *(continued)*
molar, of Ni hydrides (1) 42*h*.
of refractories (9) 209*b*.
of solids, determination with thermal diffusivity and conductivity coeff. (1) 32*a*.
of Ti and V disilicides (1) 38*c*.
of U sesquiselenide (5) 128*i*.
of WC (7) 182*j*.
of Zn tungstate (7) 188*d*.
in catalytic monoliths, generated and distributed (3) 81*h*.
and component transfer, by free convection, correlating equation for (3) 79*g*.
of compression, of clay-water mixtures (5) 140*d*.
control (9) 224*g*.
effect, on surface acidity and catalytic activity of ZrO_2-Al_2O_3 and ZrO_2-SiO_2 catalysts (9) 241*b*.
exchange, between flame and reflecting surface of glass, automatic control equipment (9) 200*i*.
exchangers, core, P (3) 69*d*.
gas turbine rotary, P (3) 69*c*; for gas turbine engines, P (7) 167*b*.
refractory, P (5) 122*g*.
regenerative, matrix, P (3) 70*i*.
regenerative-type, for gas turbines, P (1) 22*e*.
rim and hub with L-shaped cross section, P (7) 167*b*.
rotary, for gas turbines, P (1) 22*f*; rotary regenerating, for gas turbine, P (3) 70*j*; rotary regenerative, P (5) 133*a*; rotary regenerative, P (9) 207*j*.
Si_3N_4, P (7) 168*g*.
of fusion, of InAs, quantitative thermal analysis (5) 139*h*.
of hydration, by heat of solution, new Yugoslav standard (5) 98*i*.
of immersion, of clays in water (9) 215*h*.
of Na/Ca-montmorillonite systems (5) 147*g*.
of Na_2O-B_2O_3 glasses in butylamine-cyclohexane solution (5) 107*e*.
of mixing, and ternary excess enthalpy in Na, K||Cl,Br (3) 91*e*.
resistance, of mortars, effect of Al gel (1) 2*j*.
sinks, diamond bonds, thermal resistivity (7) 172*f*.
of solution, of glasses (9) 200*h*.
specific, direct determination by differential scanning calorimetry (7) 176*a*.
of garnet $Ca_3Mn_2Ge_3O_{12}$ (1) 45*g*.
of glasses, temp. dependence (9) 203*b*.
of $Li_2O.Al_2O_3.nSiO_2$ glasses and keatite-phase glass-ceramics (9) 201*h*.
measurements on $Tl_2Cd_2(SO_4)_3$ (1) 45*g*.
quantitative determination by differential scanning calorimetry (3) 80*a*.
of SiO_2 (1) 41*d*.
transfer, radiation, across spherical pores, effect of matrix conductivity (3) 86*d*.
survey 1975 (5) 132*i*.
through walls of kilns or furnaces, controlling, P (5) 133*i*.
treatment, of bulk materials, apparatus for, P (7) 178*g*.
of material in powder form, P (1) 31*c*.
Heaters, catalytic, P (9) 224*h*.
dark, coatings, P (5) 127*c*.
electrical storage, P (9) 224*i*.
for high-freq. heating, by dielectric losses, P (9) 224*i*.
pre-, ZAB, chemical reactions in, under high alkali load (3) 50*a*; ZAB, for dry-process cement, internal processes in (3) 50*g*.
-kiln-cooler system, computer automation for (3) 50*d*.
re-, air, for blast furnace, P (5) 121*a*.
Heating, aluminosilicates, in dc electric field (3) 88*e*.
fines, P (9) 226*i*.
pre-, suspension-type system, for powdery raw materials, P (3) 82*c*.
radiant, appliances, porous ceramic elements for, P (7) 167*j*.
radiation-convection, at low and medium temp., for improved energy efficiency (5) 132*i*.
Heating elements, of conducting cermets, limiting operating temp. (3) 66*e*.
of high temp. furnace, for thermal analyses (9) 224*d*.
P (3) 69*e*; (9) 213*e*.
Helium, diffusion, and solubility in B_2O_3 and Na borate glasses (7) 156*a*.
migration, in alkali borate glasses (7) 157*a*.
in borosilicate glass (9) 200*i*.
Hematite, from Fe(III) hydroxide (3) 88*d*.
magnetoelastic interactions in, antiferromagnetic resonance study (1) 35*i*.
precipitation, from Fe-rich spinel solid solutions, kinetics (9) 234*a*.
Hisingerite, weathering product, from saponite (5) 140*h*.
Holmium, $HoFe_3$, magnetic properties (1) 41*h*.
$HoN_{0.98}$, enthalpy of vaporization (5) 141*h*.
optical intensities, in tellurite, calibo, and phosphate glasses (7) 158*i*.
single crystals, Hall effect in (5) 135*h*.
Holograms, vol, in photochromic materials (5) 111*h*.
Holography, storage, in $LiNbO_3$ (3) 88*i*.
Hydration, of alpha-C_3P (7) 182*c*.
autoclave, of quartz-C_3S mixtures, effect of precuring (3) 52*b*.
cement, effect of polymerization (3) 53*e*.
fly-ash (5) 100*a*.
portland clinker, high-grade (3) 52*a*; portland, effect of triethanolamine (7) 151*a*.
of concrete, after mixture with water (9) 195*f*.
of C_2S, in nepheline slurries (1) 2*h*.

Hydration *(continued)*
of C_3A (7) 150*a*. effect of lignosulfonate fractions (7) 151*h*. in unsaturated compounds (5) 100*b*.
of C_3S (3) 52*i*; (7) 151*g*. early (9) 194*a*. pastes, effect of gypsum (7) 151*e*.
of glass, silicate, in aqueous solutions, P (7) 162*d*.
heat, of cements, measurement by modified heat of solution (7) 152*b*.
of mineral binders, determination of amount of heat evolved during, calorimetry (9) 223*a*.
Hydrochloric acid, digestion, and solvent extraction of western phosphates (7) 178*g*.
Hydrogen, effect, on elastic moduli of V, Nb, And Ta single crystals (3) 86*g*.
H_2SiO_3, in silicate materials (3) 79*g*.
interdiffusion, with alkali ions in glass surface (7) 157*j*.
peroxide, adsorption on TiO_2 surface (7) 179*e*.
Hydrogen ion concentration, adjustment, during complexometric determination of rare earth elements in glasses (5) 104*c*.
indicators, reusable glass-bound (1) 11*f*.
measurements, glass microelectrode probes for (9) 200*f*. standardization (5) 132*c*.
Hydrophobic properties, of zeolites (7) 182*f*.
Hydroxide, OH^-, effect on dielectric constant of SiO_2 (9) 230*j*.
Hydroxides, OH^- groups, effect on F content and properties of glasses (9) 201*c*.

Illite, lath-shaped, structure and formation (5) 145*e*. separation, in fireclays (7) 178*j*.
Ilmenite, decomposition, in KOH-H_2O solutions (7) 180*c*. single crystals, Mössbauer studies (5) 142*i*. tailings, destabilization and separation, P (3) 83*b*.
Indexes, to American Ceramic Society Journal, and Ceramic Bulletin, B (3) 94*c*.
Indium, antimonide, amplification of ultrasound in (1) 35*d*. n-type, concentration and mobility of electrons in (1) 36*e*; n-type, heavily doped crystals (1) 39*i*. p-, electrical parameters and impurity photoconductivity in (5) 137*h*. thermal oxide layers on (1) 47*h*. -In films, thermomagnetic properties (3) 75*e*.
arsenide, heat of fusion, quantitative thermal analysis (5) 139*h*. separate and joint solubility of Zn, Cd, and Te in (5) 145*e*.
$In_xGa_{1-x}As$, films, incorporation of Sn and Te in (1) 26*i*.
$In_{1-x}Ga_xSb$, thin films, epitaxial growth by multitarget rf sputtering (9) 217*c*.
iodide, crystallization, behavior of Ag, Cu, Sn, and Ni impurities in (5) 135*c*.
phosphide, electrical reflectance spectra, Kramers-Kronig analysis (1) 41*i*. thin films, preparation and study (3) 74*f*. tipping during growth (1) 25*c*. Zn diffusion in (3) 73*a*. (100) surfaces, thermal annealing (7) 180*e*.
range 2–14°K in, deviations from Matthiessen rule in (1) 36*i*.
sesquioxide, optical and electrical properties (5) 143*b*.
sesquisulfide, gamma-, vapor and flux growth (1) 47*j*.
single crystals, electrical resistance, effect of Pb impurities on temp. dependence (5) 138*b*.
^{113}In, and ^{115}In, Doppler shift attenuation of gamma-ray energy during Coulomb excitation (1) 37*e*.
Inesite, chain silicate, new (7) 182*g*.
Infrared, attenuation, in alpha-particle irradiated GaAs (1) 40*b*. studies, of surface chemistry of oxides (7) 183*b*.
Infrared techniques, response technique, for detecting defects and impurities in diodes (1) 32*c*.
Inorganic materials, solids, bonding, P (1) 3*h*.
Instruments, analysis, detection limits in (1) 32*e*. floating funnel, to determine viscosity of materials (9) 223*e*. granulometer, laser (7) 176*e*. microbalance, quartz, thermoelectrically cooled (1) 33*g*. monochromator, curved crystal, for detection limits of crystalline phases (3) 85*f*. safety (5) 130*j*. to study plasmas, at high temp. (7) 175*f*. transpiration, high-temp., to study glass melts (9) 200*j*.
Insulation, electrical, embedding composition, P (9) 219*g*. layer, doping, P (3) 76*i*. powdery material, and thermally conducting and electrically insulating filled resin, P (7) 172*c*.
Insulation, thermal, development, ancient and modern (3) 81*h*. fibrous, P (5) 121*i*. in walls (3) 81*i*.
industrial, SiO_2-containing tailings in articles for (5) 121*g*.
materials, fibrous, P (5) 121*i*. lightweight, new (5) 118*d*. from low to high temps. (5) 121*d*. in U.S.S.R. (5) 118*b*.
module, ceramic fiber, P (7) 177*i*. P (5) 112*c*.
and sound, argillaceous-fibrous (9) 208*b*.
Insulators, electrical, capacitively graded, P (7) 172*i*. compositions, high-Al_2O_3, P (5) 124*j*. dielectric breakdown in, acoustic emission in evaluation (7) 170*j*. electron emission, of metals into (5) 125*h*. for heating element, P (5) 124*h*. improved, P (9) 216*a*. materials, for microcircuit construction, P (7) 172*c*. molder for, isostatic pressure, P (1) 24*d*. Mott, localized-orbital theory (7) 183*c*.

Insulators, electrical *(continued)*
porcelain, flaws in, due to microbiological processes (9) 215*f*. with semiconducting glaze, P (9) 219*f*.
Insulators, thermal, P (1) 22*b*.
Interfaces, regular solution, dependence of interfacial tension on separation (7) 180*f*.
Ions, cations, coordination in oxides, bond strength effect (7) 179*h*. distribution in $Fe_{3-x}Cu_xO_4$, Moessbauer study (3) 90*b*; distribution in silicate minerals (7) 187*b*. effect on dissolution of Pb ion with acetic acid in frits (9) 198*d*. effects on dissolution of Pb ion by acetic acid (3) 56*g*. exchange of vermiculite, kinetic survey (5) 141*b*; exchange of $[Co(NH_3)_6]^{3+}$ from H-$Co(NH_3)_6$-vermiculite by NH ions (7) 179*e*; exchange, in aluminosilicate hydrogels, effect of electrolyte sorption (9) 240*d*. metal, sorption on natural clinoptilolite (9) 239*j*. ordering in $Ln_{1-x}Sr_xCoO_3$ (1) 35*f*; ordering in Ni-Mg olivine (3) 84*g*.
diffusion, into quartz glass, P (9) 204*d*.
emission, from refractory borides (3) 72*d*.
exchange, to chemically strengthened glass containers (5) 105*c*. effect on mechanical resistance and microhardness of industrial glasses (3) 56*b*. in glasses, kinetic aspects (9) 201*b*. on porous glasses (9) 201*i*. for strengthening glass, P (3) 62*h*. for surface treatment of glass or ceramic article, P (1) 31*e*.
implanting, in semiconductor crystals, P (1) 29*a*.
ionicity, of HgSe (5) 138*d*.
mobilities, at high fields in solid and liquid dielectrics (1) 47*e*.
transport, fast, in solids (9) 235*b*.
Iridium, compounds, effects on magnetic properties of CrO_2 (1) 38*d*.
oxide, semiconducting, magnetic and electrical properties (5) 110*b*.
Iron, bivalent, and trivalent, in sheet glass, determination (1) 32*i*.
in carbonates, microprobe determination, effect of staining (1) 32*h*.
cast, enameling, electrolytic and electrochemical deposits of Ni, Co, and Cu on (5) 103*e*.
compacts, impregnation with molten glass (3) 65*g*.
compounds, effect on properties of electroinsulating cordierite-type materials (3) 71*f*. in Korean kaolin minerals (3) 92*i*.
dielectric compounds, size of spike regions formed in (5) 139*i*.
effect, on phase formation and hydration of Ca aluminate (3) 89*b*.
$FeBO_3$, antiferromagnetic resonance in (1) 35*i*.
$FeCr_2S_4$, chemical transport (1) 36*a*.
$Fe(Fe_xCr_{2-x})O_4$ spinels, magnetochemical characterization (5) 141*g*.
FeO_4, oxoferrate (9) 232*c*.
ferric-ferrous ratio, in Na_2O-P_2O_5 melts (1) 8*f*.
ferrous, ferric, and total, in standard rocks, polarography (1) 33*d*. and total, in silicate rocks, by automated colorimetry (1) 32*f*.
ferrous ion, diffusion in AgCl (5) 137*h*.
ferrous metals, descaling, P (7) 154*a*. protective coatings for, P (7) 154*c*.
Fe_2A, (A = Sc,Y,Zr,Hf), electrical resistivity and magnetic moments (5) 136*a*.
Fe^{2+}, paramagnetic resonance in crystal lattice of $CaCO_3$ (1) 43*e*.
Fe_2TiO_5, thermal diffusivity, effect of microcracking (7) 180*j*.
Fe^{3+}, in single crystals of YAG, orthoclase, and Mn silicate, absorption spectra (9) 226*e*. structural, perturbation in smectites by exchange ions (3) 90*h*.
Fe_3O_4, heat capacity (7) 182*j*.
$Fe_{3-x}Cu_xO_4$, cation distribution in, Moessbauer study (3) 90*b*.
$Fe_{40}Ni_{40}P_{14}B_6$, amorphous ferromagnet, easy axis (9) 217*h*.
Fe_5Ge_3, films, short-range order in (9) 238*i*.
films, ferromagnetic, measurement of properties (9) 235*a*.
in glass, alkali phosphate, equilibrium studies, comments and reply (3) 55*i*.
group, additives, effect on Nb sintering (9) 233*g*.
hydroxide, mixed with Al hydroxide, stability on montmorillonite (3) 92*a*.
-ic oxide, effect on properties and crystallization of MgO-Al_2O_3-SiO_2 glass (1) 6*f*; effect on viscosity of CaC_2 (1) 37*j*. ferrous, and use in magnetic recording, P (5) 127*h*. Pb removal from, effect of temp. (3) 82*e*. reaction with $CsPO_3$ (1) 44*h*. small particles, size effects in (5) 145*i*.
ions, absorption spectra in Y aluminate lattice (9) 226*d*. spin configurations in $ErFeO_3$ (9) 234*a*.
monoaluminide, magnetic properties (5) 141*g*.
-NiS ceramics, electrical and magnetic properties (7) 181*b*.
-ous fluoride, and FeF_3, free energies of formation by EMF (5) 139*j*.
-ous oxide, electrical and optical properties (7) 181*e*.
-ous sulfate, crystals, recovery from spent pickle solution, P (1) 31*a*.

Iron *(continued)*
oxide, acicular magnetic, P (3) 75*j*. effect in bloating or vitrified ceramic materials (7) 169*j*; effect on direct bonding in chrome-magnesite refractories (9) 209*g*. magnetic thin films, P (9) 219*j*. reaction with mullite-corundum refractories (5) 119*b*. sintering behavior, effects of source and calcination (9) 218*e*.
powders, oxide phase in (3) 66*c*.
reduction, in $LiNbO_3$ crystals, P (5) 128*c*.
removal, prior to water hardness titration (9) 223*f*.
silicide, bcc, self-diffusion in, effect of ferromagnetic transition (5) 140*j*. thin films, magnetic domains in (1) 26*e*.
substitution, for Al in soil kaolinites (5) 140*i*.
sulfide, antiferromagnetic powder, magnetic-field-induced crystallographic texture in (1) 42*g*. Fe_3S, cementite structure for (9) 227*f*. single crystals, growth (1) 39*f*.
Irradiation, dose rate, effect on fatigue of electroradiographic layers of Se (1) 37*c*.
Isotopes, radioactive tracing, for operational parameters of vibratory ball mills (5) 99*b*.

Joints, Al_2O_3-metal, P (7) 172*h*. Au-to-glass, P (9) 219*a*. metal-ceramic, P (9) 219*g*. soldered, P (3) 77*h*. sealed, for joining parts of vacuum vessel, P (3) 62*d*.
Junctions, Bi-film-SiO_2-Pb, thin epitaxial, tunneling characteristics (9) 242*a*. corundum ceramic-Cu, properties (1) 27*b*. device, gold-metalized sealed, failure mechanisms in (3) 73*h*. photoresponsive, P (3) 62*b*. hetero-, Ge-GaAs pn, current transmission in (3) 85*f*; Ge-GaAs pn, switching properties (5) 126*b*. Josephson tunnel, V-insulation-lead, hysteresis (1) 26*h*. p-n, base, effective current relaxation time in (1) 25*i*. defects in, measurements (9) 218*b*. forming by liquid phase epitaxy, P (1) 28*j*. in GaP, stochastic phenomena in (5) 145*d*. Si, amorphous-crystalline, properties (1) 27*b*.

Kaolin, Angren, physicochemical properties (1) 34*b*. B, Oberwinter, effect of organic flocculants on dispersibility (5) 123*g*. blending, properties, and development (7) 168*e*. bodies, bentonite in (1) 20*b*. from Brazil, applications (5) 133*d*. for chinaware (1) 22*i*. dehydration, kinetics (9) 234*c*. deposits, in Germany (5) 134*a*. filtration, two-stage tube, P (3) 79*a*. interaction, with orthophosphoric acid (3) 89*g*. Karlovy Vary, in European industry (5) 134*c*. lightweight, products (5) 117*f*. mineralogy, deposits, uses (9) 225*f*. minerals, growth spirals on (3) 88*d*. Korean, Fe compounds in (3) 92*i*. mullite development from (9) 235*i*.
mining, dragline excavator operations (9) 225*a*.
monomineralic soils, fabric analysis by spectrophotometry (3) 81*b*.
properties, from Karaotkelsk for acid-resistant bodies and tile (1) 22*g*.
Prosyanovskii-enriched, casting properties (9) 215*i*.
raw materials, physicochemical surface properties (7) 169*e*.
refractory, min wt of specimens during sampling (9) 222*e*.
sedimentary, and hydrothermal, in Mexico, SEM of fabrics (5) 137*i*. in slurry form (9) 215*b*.
Spanish, geology, mineralogy, and origin (3) 83*d*. residual and volcanic deposits, typology and conclusions (7) 178*b*.
suspensions, deflocculated, elasticoviscous properties (1) 38*e*.
wet-treated, structural-mechanical analysis of quality (1) 46*d*.
in white ceramics, properties (9) 216*c*.
wool, thermal stability (9) 212*f*.
Kaolinite, brightness, improving, P (9) 226*i*. composition, electron microscope microprobe (5) 136*c*. consolidated, fabric (3) 87*a*. doped, thermophysical properties (1) 27*e*. edge surface, isoelectric point (9) 233*j*. halloysite-, transformation, at room temp. (3) 88*d*. micaceous occlusions in, ultramicrotomy and electron microscopy (3) 89*i*. minerals, Fe-stained, electron microscopy and Moessbauer spectroscopy (7) 181*g*. polytypism and transformation (9) 237*a*. natural, ESR (9) 231*j*. packets, and stacking possibilities, symmetry, OD interpretation (5) 142*h*. reactions, with $SrCO_3$ and $CdCO_3$ (7) 185*i*. separation, in fireclays (7) 178*j*. soil, substitution of Fe for Al in (5) 140*i*. stable radicals in (3) 90*b*. synthesis (9) 240*b*. role of Si/Al and (alkali)/(H^+) ratio (5) 141*a*. synthetic, ESR studies (3) 87*f*.
Kieselguhr, Polish, as pozzolanic additions to structural bind-

Kieselguhr Polish *(continued)*
ing materials (7) 150*h*.
Kilns, biscuit, converted, to cut fuel bill (9) 224*h*.
cars, lightweight, P (5) 133*j*.
P (1) 34*b*.
cement, capacity estimation (9) 195*a*.
contactless distributor for compressed air (1) 2*g*.
P (9) 197*b*.
construction, with space-age materials, B (3) 95*d*.
Dopol, with planetary cooler, 3000 tons /day (5) 102*g*.
electrically heated, for melting vitreous SiO_2 or quartzlike glasses, P (1) 34*a*.
exhaust gases, tables of waste-heat content from (3) 81*b*.
Hoffmann ring, in brickmaking, gas supply patterns for (9) 224*b*.
Lepol-, and Dopol-system, at Danube cement plant (5) 100*h*.
lightweight, from aluminosilicate fibers (3) 66*d*.
lime burning, four-chamber (5) 102*b*.
lime shaft, fuel fired, kiln gas temp. and fuel consumption rate in (7) 151*f*.
operation, and drying plant (3) 81*f*.
periodic, and tunnel, economic analysis (1) 33*e*.
planetary cooler, elbows, refractory lining for (5) 101*b*.
pusher-type, in sintering process (5) 126*f*.
rotary, for burning clinkers (1) 2*h*.
for cement, lime, Al_2O_3, P (9) 224*g*.
concrete lining of chain zone (1) 2*g*.
cooler system for, P (3) 82*a*.
for dolomite, dimensional design (5) 99*c*.
drive power consumption (1) 2*i*.
dynamic laws for movement of material in (1) 2*i*.
elongated drum shell construction, P (3) 82*a*.
firing Belkinsk clays in (9) 209*c*.
floating and welded tires for (1) 2*h*.
gases, sampling technique for (5) 99*c*.
large, plant experience with (1) 3*j*; large, planetary coolers for (5) 100*j*; large, design and control (5) 101*a*.
operation using cement dust slurries (1) 2*e*.
optimization of material movement in (5) 100*i*.
outlets, design (3) 50*g*.
P (3) 82*b*; P (5) 133*a*.
plant, P (7) 153*c*.
for portland cement clinker, cycle of volatile substances in (3) 50*f*; portland cement, compound formation in (9) 196*f*.
shell, automatic welding of joints (1) 1*j*; shell, curve of axis during operation (1) 2*g*.
specific loading (5) 99*a*.
speed, increase accelerates clinker formation (1) 3*b*.
support, P (7) 153*d*.
with uphill cooler tubes, P (7) 178*b*.
4.5- x 170-m, modernization (1) 2*g*.
rotary cement, refractory lining of outlet zones, inlet bends to planetary coolers, and cooler tubes (5) 101*b*.
supplementary firing systems for preheaters and grates (5) 97*g*.
shuttle, new design (7) 177*b*.
semiautomatic liquid-gas-fired (9) 224*j*.
sintering zone, injecting dust into (1) 1*h*.
for tile, P (3) 82*b*.
trolleys, ceramic, P (7) 177*i*.
truck, structure, P (7) 178*a*.
tunnel, coal firing, mechanical stoking methods for (3) 81*a*.
comparative operating results (7) 177*h*.
construction problems from operational point of view (3) 67*a*.
controlling air vol in, P (7) 178*a*.
dry-type defluorinator for exhaust gas (7) 177*d*.
electrical ceiling heating in, P (9) 224*i*.
exergetic design calculation (5) 132*g*.
with flat ceramic conveying plates, P (1) 34*d*.
gaseous medium in, automated monitoring (1) 33*d*.
large, for sanitary ware (7) 177*b*.
modification to conserve energy (1) 33*f*.
oil metering system for burners in (7) 176*h*.
P (1) 34*c*.
porcelain firing, automated monitoring (1) 33*e*.
supersized, for brick (9) 207*g*.
super-high-temp., with gas firing (7) 177*i*.
walls, thermal stresses in (5) 133*a*.
Kinetics, of chemical transport, of GaAs (5) 141*d*.
crystallization, of glaze coatings (1) 23*i*.
of $(NH_4)_2SO_4$ (1) 36*c*.
decay, of metastable state of Nd^{3+} in crystals (1) 37*i*.
dehydration, of kaolin (9) 234*c*.
of dehydration reactions, in $CaSO_4$-H_2O system (3) 89*h*.
densification, of Mo and W borides in hot-pressing (3) 64*b*.
for double-torsion specimen (7) 186*g*.
electro-, of allophane-imogolite mixtures in alkaline media (9) 231*e*.
aqueous suspensions, electrokinetic phenomena (9) 231*e*.
of electron conductivity, in multidomain ferromagnetic structures (1) 41*d*.
of etching, B-Zn-Pb glasses (9) 201*d*.
Pb chalcogenide (9) 218*a*.
of exoemission, photostimulated electron, from deformed thin films systems (3) 89*i*.
of Fe^{2+}-Mg order-disorder, in anthophyllites (1) 41*e*.
of formation, of Au-Ge-Si metallic glass (1) 9*i*.
of Hf silicides on Si (7) 171*e*.
of HfN in N and ammonia streams (1) 41*e*.
of K titanate (9) 230*a*.
of $LiFeO_2$ (5) 141*e*.
Kinetics of formation *(continued)*
silicide, by thin films of V on Si and SiO_2 substrates (9) 234*f*.
WSi_2 in thin-film system W/PtSi/Si (7) 183*a*.
of interaction, of Ti enamel coatings with acid solutions (9) 198*j*.
of ion exchange, in glass (9) 201*b*.
in glasses (7) 158*d*.
of leaching, chalcopyrite at high temp. (7) 183*h*.
of Li evaporation, from solid solutions of Li_2O in NiO (1) 41*g*.
magnetization, of suspensions of ferromagnetic particles (1) 42*a*.
of mechanochemical reactions (5) 141*e*.
nucleation, of glass-forming liquids (1) 10*j*.
of oxidation, of CO on NiO and ZnO, effect of external electric field (1) 37*a*.
of Mo (1) 43*a*.
of organic soils by catalytic ceramic coatings (9) 198*a*.
oxidative vaporization, of Cr_2O_3 in O (1) 43*c*.
of point defects, in Cu_2O (7) 188*b*.
of precipitation, of hematite, from Fe-rich spinel solid solutions (9) 234*a*.
of production, and stabilization, of C_2S (9) 195*a*.
of quartz transformation (3) 89*i*.
of reaction, of $KMnO_4$ and KIO_4 in alkali halide disks (7) 183*i*.
of Na metasilicate-sand, emf method (1) 9*a*.
recrystallization, of CdSe films (1) 41*h*.
sintering (5) 146*g*, clay, with mineralizer and surfactant additive (9) 215*c*.
of compacts of spherical Al_2O_3 particles (1) 40*b*.
of ferrite powders (9) 233*f*.
of MgO from brine (1) 41*h*.
Mo and NaF under constant heating rates, kinetics (9) 234*d*.
in nonisothermal conditions (3) 91*e*.
of solid state pyrolysis, high temp., of Na_2HPO_4 (5) 141*g*.
synthesis, of $NdAlO_3$ and $CeAlO_3$ (9) 234*f*.
of $SrMoO_4$ (9) 234*f*.
of Y, Nd, and Ce chromites (9) 234*g*.
of thermal decompositions (9) 234*b*.
of thermal dehydration, of Na aluminosilicate hydrogel (7) 183*i*.
of transformation, anatase-rutile, in presence of additives (7) 179*j*.
vacuum deposition, of GeS films (1) 26*d*.
of volatilization, of soda from Na silicate melts (7) 158*e*.
Knudsen study, effusion, to determine intrinsic nonstoichiometry in Pb zirconate-Pb titanate system (7) 183*c*.
Kramers-Kronig analysis, of InP, electrical reflectance spectra (1) 41*i*.
Krypton, diffusion, in glasses and vitreous SiO_2 (7) 158*g*.
Kyanite, in gneisses, of Aston massif (5) 144*h*.

Laminates, metal-ceramic, solid state bonding, fracture mechanics study (3) 73*b*.
Lamps, automotive vehicle, cover glass for, P (7) 161*h*.
discharge, with blow-molded arc tube ends, P (7) 161*i*.
high-pressure, with metal lead-through conductor, P (7) 172*i*.
metal halide, P (9) 205*e*.
refractory seals for, P (7) 173*f*.
ThO_2-Y_2O_3 emission mixture for, P (3) 77*a*.
electric, with light-shielding coating, P (3) 60*i*.
P (1) 14*d*.
electric discharge, P (5) 112*f*.
single-ended, P (1) 15*e*.
fluorescent, containing In oxide, P (5) 112*j*.
gas discharge, envelope, P (3) 61*a*.
high-pressure, P (5) 113*d*.
Hg vapor discharge, luminescent coating for, P (5) 113*g*.
incandescent, C-filament, C-fluorine transport reactions in (5) 135*e*.
Na vapor, high-pressure, P (1) 14*e*; high-pressure, P (5) 113*d*.
photoflash, coating, P (9) 204*h*.
reprographic, precoat for, P (3) 62*c*.
tubular envelope, P (9) 206*j*.
Lanthanide, in clays (5) 141*i*.
oxides, electronic structure and physical properties (3) 87*g*.
Lanthanon, $Ln_{1-x}Sr_xCoO_3$, cation ordering in (1) 35*f*.
Lanthanum, fluoride, interaction with K tetrafluoroborate melts (9) 201*h*.
hexaboride, films, by synthesis from elements (3) 74*d*.
reactions with carbides and borides of refractory metals (3) 67*d*.
$LaNb_3O_9$, modification, new (7) 184*g*.
$La(Ni_{0.75}W_{0.25})O_3$, and $La(Ni_{0.75}Mo_{0.25})O_3$, synthesis and properties (1) 46*b*.
$La_{0.7}Pb_{0.3}MnO_3$, catalytic activity for CO oxidation, effects of Pt content (1) 38*d*.
$La_2Ti_2O_7$, crystal structure (5) 136*f*.
manganate, oxidized, structural behavior (7) 187*e*.
oxide, interaction with HfO_2, effect of degree of dispersion (5) 137*d*.
Sr vanadates, thermionic emitter, P (7) 173*j*.
sulfide, and alloy $LaS_{1.47}$, electroconductivity and thermal emf (5) 138*h*.
Lapping, devices, P (5) 130*d*.
Lasers, action, in CaY_2-$Mg_2Ge_3O_{12}$ (9) 236*f*.
assemblies, using glass disks with Pb borate coatings, P (7) 162*f*.
beams, self-diffraction by phase lattice in CdSe (1) 45*h*.
Lasers *(continued)*
CO_2, parameters for Al_2O_3 scribing (3) 74*j*.
pulsed, irradiation of KCl crystals (7) 185*f*.
crystal, epitaxial thin-film Fabry-Perot cavity for, P (5) 128*b*.
damage, in optical materials, B (7) 191*d*.
diode, double heterojunction, P (5) 127*d*.
Er, ceilometer, P (9) 204*e*.
fusion targets (1) 9*b*.
GaAs, double-heterostructure junction, emission spectra and electronic gain (7) 170*c*.
GaAs injection, P (3) 61*a*.
$Ga_{1-x}Al_xAs$, double-heterostructure, distributed-feedback coupling in (3) 56*j*.
GdAlAs-GaAs, heterojunction, rapid degradation phenomenon in (9) 238*g*.
glass (5) 107*e*, with high resistance to internal damage, P (3) 61*c*; with high damage threshold, P (9) 205*j*.
P (5) 113*f*.
Q-switching device for, P (5) 113*i*.
spherical fusion pellets, surface properties (7) 160*d*.
heating, of optical fiber (9) 201*e*.
high power, highly transparent solids for (9) 198*j*.
machining, of oxide materials, P (5) 130*d*.
materials, mixed aluminates (1) 26*h*.
Nd light, optical filter for, P (9) 205*j*.
oxide materials, crystalline, preparation and properties (7) 159*f*.
polycrystalline, ceramic, P (1) 29*d*; ceramic (7) 159*d*.
window, alkaline earth metal halide crystals for, P (5) 111*a*.
CdTe, absorption edge in (5) 106*f*.
Laterite, goethite in, and associated silicates, crystallinity (7) 180*i*.
Ziarat, reduction (3) 83*b*.
Lead, in airborne particles, determination by proton activation analysis (9) 223*e*.
atomic absorption, Zeeman, determination with dual chamber furnace (9) 224*a*.
carbonate, decomposition (5) 146*i*.
chalcogenide, chemical etching, kinetics (9) 218*a*.
containing, ceramic compositions, and Pb release inhibiting amount of Cr compound, P (3) 72*e*.
diiodide, band gap, localized levels in (1) 41*c*.
dioxide, beta-, single crystals, P (9) 220*b*.
solid-phase interaction with group II element oxides (3) 91*g*.
films, superconducting, magneto-optic studies and electrical measurements of current flow in (3) 74*c*.
germanate, crystals, dielectric spectra (9) 229*h*.
impurities, effect on temp. dependence of In electrial resistance (5) 138*b*.
ions, dissolution by acetic acid, effects of cations (3) 56*g*; dissolution with acetic acid, effects of cations (9) 198*d*.
transport at interface between molten Pb and silicate glass (3) 59*h*.
La zirconate titanate, bodies, P (3) 76*f*.
La zirconate titanate powders, P (3) 76*f*.
molybdate, and $PbWO_4$, luminescence (1) 41*e*.
orthovanadate, antiferroelectric and ferroelastic (9) 234*i*.
oxide, reaction with ZrO_2 and TiO_2 (9) 238*a*.
thin films, by thermal decomposition of Pb naphthenate (3) 73*b*.
-SiO_2 frit, relation between acid durability and ir reflection spectrum in (1) 45*d*; -SiO_2 melts, structure and thermodynamics of mixing (5) 143*i*.
$Pb(Cr_{0.50}Nb_{0.50})O_3$, formation (1) 39*f*.
$PbGeO_3$, new high-temp. compound (7) 184*h*.
PbSe.nSnSe, condensates, formed in vacuo vaporization (9) 227*d*.
$Pb_xSn_{1-x}Te$, films rf sputtered on thin metallic structures, structure (3) 75*f*.
(Pb,Zr)O_3, hysteresis characteristics (9) 217*f*.
$Pb(Zr_xTi_{1-x})O_3$, fluctuation of composition (5) 139*c*.
$Pb_{1-\frac{1}{2}x}Sn_xTe$, p-type, reflectivity, temp. dependence (3) 92*h*.
Pb^{2+}, nephelauxetic effect in oxide glasses (1) 6*i*.
Pb_2NbCoO_6, and $Pb_3Nb_2CoO_9$, thermogravimetric study (5) 146*e*.
Pb_2SiO_4, crystallization (7) 155*g*.
$Pb_2V_2O_7$, vibrational spectrum (7) 188*j*.
$Pb_5Ge_3O_{11}$, elastic constants (5) 138*d*.
PLZT, ceramic, ferroelectric domain alignment in, comment (7) 170*b*.
ceramics, high voltage photovoltaic effect in (7) 171*c*; ceramics, memory and display uses for (7) 171*i*; ceramics, antiferroelectric to ferroelectric phase transition in (7) 181*b*; ceramics, vibrational modes in (9) 242*b*.
electrooptic shutters (5) 125*i*.
optical transmittance, effects of crystal-lattice distortion (1) 25*a*.
powder, chemical preparation (7) 170*a*.
scattering in, switching speed (7) 172*f*.
PZT, ceramics, effect of low-level substitution into (3) 86*c*; ceramics, ferroelectric domains in, TEM (7) 180*h*.
compositional fluctuation near tetragonal-rhombohedral phase-boundary (9) 227*f*.
ferroelectric systems, optical transmittance (9) 217*h*; ferroelectric ceramics, dielectric constant (9) 231*a*.
powder, and piezoelectric ceramics from, P (9) 219*b*.
release, from on-glaze colors (5) 124*c*.
removal, from ZnO, Fe_2O_3, CaO, Al_2O_3 and SiO_2 (3) 82*e*.
-SnTe, Auger recombination and junction resistance in (9) 227*c*.
Sn telluride, monocrystalline, P (5) 127*h*.
single crystals, nucleating growth, P (5) 127*i*.

Lead *(continued)*
soluble, in domestic ceramic products, determination (7) 176*a*.
sulfide, films, from aqueous solution of thiourea (3) 74*e*; films, grown by hot wall method (3) 74*j*
halogen vapor deposition (9) 232*g*.
single crystals, vapor phase growth (1) 48*a*.
telluride, films, electron microscopy (3) 73*h*.
layers, optical thicknesss changes in (7) 171*f*.
titanate, crystals, surface layer (9) 218*i*.
from PbO-TiO_2-Al_2O_3-SiO_2 glass, microstructure development and crystallization kinetics (1) 9*h*.
polycrystalline samples, potential distribution in (9) 218*e*.
titanozirconate, flux growth (5) 139*f*.
zirconate, phase transitions and spontaneous polarization in (3) 90*j*.
zirconate-titanate-germanate, ceramics, properties, effect of sinter conditions (9) 217*h*.
Lepidolite, Indian ores, Li extraction from (3) 82*g*.
Liberite, crystal chemistry (5) 136*a*.
Light, exciton-magnon absorption, in antiferromagnetic siderite (1) 38*h*.
Lime, burnt, grinding intensified with surface-active substances (7) 151*j*.
P (9) 212*d*.
from carbonate materials, industrial design for (9) 224*c*.
chemical activity (1) 2*e*.
of controlled quality (3) 52*g*.
dolomitic polishing (7) 150*j*.
firing, thermal treatment and furnace for, P (7) 153*d*.
flour, in hammer mill (9) 196*d*.
production technology (9) 195*g*.
-fly ash-sulfite compositions, P (1) 4*a*.
granular, thermal treatment, P (9) 197*e*.
industrial grade, in rotary kilns (5) 101*h*.
industry, atm protection in (7) 149*i*.
noise pollution in (7) 152*e*.
marl, briqueting and burning (5) 98*e*.
molded articles, lightweight heat-insulating, P (9) 213*i*.
powder, hydrated, for making sand-lime bricks (3) 53*h*.
powdered, apparatus for mfg., P (5) 102*d*.
preparatory processing (3) 53*f*.
properties, effect of calcining conditions (1) 2*a*.
in raw meal, homogenizing (5) 99*j*.
slurry SO_2, scrubbing, role of holding tank (7) 175*a*.
water absorption, from moist air (3) 53*j*.
Limestone, dissociation rate, effect of calcining conditions (1) 2*a*.
fine-grained, briqueting and burning (5) 98*e*.
for glass industry (9) 201*g*.
grinding, intensification with surface-active substances (7) 151*j*.
jet milling, surface-active additions in (9) 197*h*.
mechanical activation, in laboratory mills (5) 130*c*.
mud, apparatus for reclaiming, P (9) 226*f*.
quarrying, and landscape preservation (3) 82*g*.
pumpable slurry explosive in (3) 51*d*.
slurry SO_2, scrubbing, role of holding tank (7) 175*a*.
Liquids, deposition, on surface, precisely metered by apparatus, P (9) 221*j*.
viscosity, and elasticity, instrument for measuring, P (5) 132*b*.
viscous, controlling flow and pressure, P (3) 79*b*.
Lithium, Al chromites, crystallographic structure (7) 180*i*.
aluminate, enantiomorphous ordered domains in (1) 38*b*.
cells, high energy density (9) 232*h*.
effect, in interaction of ZnO surface with O (7) 182*h*.
evaporation, from solid solutions of Li_2O in NiO, kinetics (1) 41*g*.
extraction, from Indian lepidolite ores (3) 82*g*.
fluoride, effect of formation of $BaTiO_3$ from $BaCO_3$ and TiO_2 (5) 138*f*.
high-temp. creep, effect of impurities (3) 86*h*.
physical properties, effect of impurity traces (5) 137*i*.
powder, energy distribution of exoelectrons from (5) 139*b*.
single crystals, irradiation hardening (9) 230*e*.
thermoluminescence and lattice defects in (5) 146*f*.
$(Ho,Y,Er,Tm,Dy)F_4$, single crystals, in HF atm, P (9) 219*i*.
iodate, alpha-, optical and physicochemical properties (5) 143*d*.
ions, effect on NiO adsorptive properties (1) 37*j*.
$LiFeO_2$, formation from $2Li_2CO_3.Fe_2O_3$, kinetics (5) 141*e*.
liquid, compatibility of ceramics with (5) 136*c*.
$LiYF_4$, refractive indices measurement (3) 89*d*.
$Li_{0.5}Fe_{2.5}O_4$, and $Li_{0.5}Al_{2.5}O_4$, heat capacity (7) 182*j*.
Li_2BeSiO_4, and Li_2BeGeO_4, crystal chemistry (5) 136*a*.
Li_2GeO_4, Li_2GeO_3, and $Li_2Ge_7O_{15}$, ionic conductivity (9) 233*g*.
metallic, dispersion in molten salts (3) 87*h*.
metaphosphate, reaction with Al_2O_3 (1) 44*j*.
niobate, crystals, ferroelectric, stimulate emission from (1) 27*j*; crystals, reduction of Fe in, P (5) 128*c*; crystals, elastic, piezoelectric and dielectric constants (9) 230*j*.
holographic storage (3) 88*i*.
observing space charge fields during hologram writing in (9) 223*f*.
piezoelectric substrates, for acoustic surface-wave device (9) 219*c*.
plate crystals, growth and characteristics (1) 39*e*.
sound waves in, optical diffraction study (9) 236*c*.
thin films, vapor-phase growth, P (3) 77*b*.
nitride, enthalpy of formation (5) 141*j*.
orthoaluminate, ir absorption spectra (1) 40*j*.

Lithium *(continued)*
oxide, effect on Ti powder enamels for cast iron (9) 198*c*.
enthalpy of formation (7) 182*b*.
-MoO_3 melt, crystallization from solution in (3) 85*e*.
polymolybdates, thermodynamic properties (5) 146*b*.
silicate, haze-resistant glare-reducing coating, P (7) 172*i*.
Si_3N_4, P (3) 69*j*.
tantalate, single crystals, color centers in (3) 85*b*.
tungstate, double (9) 230*a*.
vanadate, revised unit cell parameters for (1) 45*h*.
Loess, as raw material, for ceramic building elements (1) 15*e*.
Lubrication, spray, technology in practice (3) 53*b*.
Luminescence, of AlN (5) 141*a*.
of $Bi_4Ge_3O_{12}$, spectral and decay properties (7) 183*f*.
of BN, phosphiding products (5) 141*b*.
cathodo-, of rare earth ions in $GdAlO_3$ single crystals (3) 84*g*.
edge, of epitaxial CdSe (5) 125*c*.
electro-, decay, ZnS:Mn, effect of Mn concentration (5) 138*a*.
microcathode, study of impurity of inhomogeneity in GaAs single crystals (9) 235*e*.
of oxide films, rf-sputtered, during sputtering (7) 171*h*.
of $PbMoO_4$, and $PbWO_4$ (1) 41*e*.
photo-, in SnO_2 single crystals (9) 234*j*.
-producing materials, upon excitation by radiation, P (9) 205*d*.
in SnO_2:Tb^{3+} (5) 125*c*.
thermo-, archeological dating by (9) 193*i*.
of ceramic ware (9) 193*g*.
of defect centers in SiO_2 films (9) 228*g*.
in LiF (5) 146*f*.
peaks, photostimulated glow curve method of isolating (1) 43*f*.
of quartz, effect of grinding (5) 137*g*.
of synthetic zircons (5) 146*g*.
in ThO_2 (7) 188*c*.
Luminescent materials, cathodo-, transparent crystalline, P (5) 114*g*.
P (5) 113*h*.
and/or photoconductive, P (5) 113*h*.
Lutetium, Lu_2O_3, polycrystalline cubic, porosity dependence of elastic properties (3) 90*g*.

Machinery and equipment, for ceramic blanks, P (1) 31*a*.
ceramic structure, P (3) 79*c*.
fluidized-bed, P (7) 175*h*.
for forming, and finishing ceramic ware, P (1) 31*i*.
lifting, for building elements, P (1) 31*b*.
maintenance, for longer life (5) 130*i*.
for metering, blending, and conveying, P (1) 31*a*.
repair, improved (1) 30*e*.
rumbling, vibratory, P (5) 130*h*.
scraper, bridge-type, for plastic raw material (5) 129*e*.
for splitting blocks, of artificial stone, P (7) 175*j*.
sponging, P (9) 216*b*.
for storing, and unloading bulk materials, P (7) 175*j*.
tanks, stirred, flow phenomena in, impeller stream and bulk (3) 78*d*.
technological, accelerated repair (1) 30*c*.
for thin, flat articles, P (1) 31*b*.
for treating materials, at high temp. and high pressure, P (1) 31*f*.
vibratory forming, of materials, P (3) 79*b*.
Machining, ceramics, effect of microstructure on rate (9) 230*b*.
Magnesite, concentration, from Semibratskoe deposit (9) 225*i*.
firing, thermal treatment and furnace for, P (7) 153*d*.
flotation-concentrated, powders from (5) 134*h*.
granular, thermal treatment, P (9) 197*e*.
of Savino deposit (5) 134*d*.
subsolidus, and melting relations for, and join $CaCO_3$-$MgCO_3$ (5) 145*f*.
from Sweden, FeO content and unit cell parameters (7) 178*f*.
synthesis, by hydrothermal method (7) 187*e*.
Magnesium, aluminate, formation, effect of metal fluorides (3) 89*e*.
hot-pressing, recrystallization during, comment and reply (3) 85*c*.
self diffusion of O in (7) 186*h*.
by solid state reaction of $MgSO_4$-Al_2O_3 system and reactivity for SO_2 (3) 91*f*.
aluminosilicate, P (9) 226*j*.
batteries, effect of heatup (1) 25*h*.
carbonate, drying and decomposition (3) 82*j*.
thermal decomposition, exothermic processes in (9) 231*g*.
dehydrated offretite, three-coordinated (9) 241*h*.
in dolomites, determination using Palladiazo as indicator (1) 33*d*.
epitaxial layers, on molybdenite (1) 25*i*.
fluoride, effect on formation of sintered $MgFe_2O_4$ compacts and magnetic properties (3) 73*c*.
hot-pressable, P (3) 83*d*.
and MgO, dielectric constants (9) 234*j*.
physical properties, reproducibilities (3) 91*a*.
thin films, Rutherford scattering and (alpha,X) reactions in (1) 45*j*.
hydroxide, carbonation (5) 98*h*.
solid solubility of $Ca(OH)_2$ in (1) 45*f*.
structure (1) 46*e*.
thermal decomposition with water vapor pressure (3) 93*i*.
$MgMPO_4.6H_2O$, (M = K,Rb,Cs,Tl,NH_4) struvite analogs (5) 136*d*.
$Mg_2Ga_4GeO_{10}$, crystals, growth in Bi germanate glasses (3) 57*j*.
Mg_2Si, thermal expansion, X-ray characteristic temp. and coeff. (5) 147*h*.
$Mg_3(VO_4)_2$, vibrational spectrum (7) 184*c*.
neutral donors, excitation spectrum in Si (1) 47*e*.
orthophosphate octahydrate, preparation conditions and thermal change (7) 152*f*.
oxide, active, with large specific surface area, P (3) 83*i*.
and $AlCl_3$, P (7) 178*f*.
and Al_2O_3, mixed oxide, P (1) 24*e*.
bicrystals, with {100} cleavage plane (1) 38*i*.
bicrystals, fracture behavior, effect of grain boundary (5) 137*e*.
from brine, kinetics of sintering (1) 41*h*.
clinker, B distribution in (1) 37*d*.
coatings, for ferrous substrates, P (5) 104*b*.
crystallite growth in hot-pressing at low temp. (3) 85*e*.
crystals, surface segregation of Al in (7) 187*b*; crystals, doped, dynamic dislocation behavior (9) 230*b*; crystals, pure, dynamic dislocation behavior (9) 230*c*.
effect on Ti powder enamels for cast iron (9) 198*c*; effect on strength of guniting compounds (9) 209*e*; effect on chemical and thermal stability of mullite-cordierite (9) 209*h*.
effect on glaze microstructure (5) 123*j*.
effect on hydration and hardening of slag glasses (3) 53*d*.
effect on properties of cement and clinker (5) 99*i*.
elastic properties, effects of inhomogeneous porosity (1) 38*c*.
growth rate of superparamagnetic precipitates of magnesioferrite in (3) 87*e*.
high-purity, P (1) 34*i*.
high-purity, behavior of CaO and B_2O_3 components (3) 65*c*.
hot-pressed, stress-strain behavior at high temp. (7) 164*h*.
hot-pressing (9) 232*j*.
from magnesite ore, P (5) 134*j*.
and $MgAl_2O_4$, thermal expansion by X-ray diffraction (7) 176*g*.
microstructure and mechanical behavior (7) 181*c*.
P (7) 178*j*.
plastically deformable, P (9) 213*g*.
polycrystalline, deformation (7) 180*d*.
powders, texture and sinterability (9) 241*h*.
reaction with $Al(H_2PO_4)_3$ (1) 19*g*.
single crystals, prismatic dislocation loops on impurity precipitates in (7) 185*h*; single crystals, Kikuchi reflection patterns (9) 234*a*.
single crystals, flow stress (3) 87*g*.
single crystals, high-temp. tensile creep (5) 140*f*.
sintered, from flotation-enriched magnesite (3) 82*d*; sintered, P (9) 226*b*.
sintering, effect of CaO (5) 137*a*; sintering, effect of B_2O_3 (7) 181*d*; as sintering aid, P (9) 213*d*.
solid solution hardening in (7) 186*f*.
solubility in melt of alkali metal chlorides (9) 239*i*.
spheroids, P (7) 167*e*.
suppression of radiation damage in (5) 139*i*.
suspensions, paraffin stabilized, properties (1) 17*g*.
S_2O^- formation on, EPR (7) 164*i*.
vacuum vaporization, effect of porosity (1) 38*d*.
V-band in, thermal decay (9) 241*b*.
-$MgAl_2O_4$ eutectic, mechanical properties (5) 141*i*.
-SiO_2 complex, coated ferrous substrates comprising, P (7) 172*a*.
silicate, fluoride-containing analogs (3) 87*j*.
hydrate, film, formation on glass surface (7) 157*e*.
hydrous, P (9) 226*i*.
Magnetic materials, metal oxide films, bonded to substrate, P (1) 28*g*.
particle oxide, evaluation (3) 73*h*.
Magnetic properties, anisotropy, in magnetite and Ni Fe ferrites (9) 233*c*.
and magnetostriction, of Y-Tb garnet-ferrites (9) 234*b*.
in Ni ferrites, effect of Ti (1) 26*a*.
of YIG (1) 41*f*.
of ceramics, effect of porosity (3) 73*d*.
of CeSb (5) 141*c*.
of Cr chalcogenide powders (3) 74*c*.
of Cr chalcogenide spinels (5) 141*d*.
of CrO_2, ferromagnetic (1) 38*d*.
of $Cr_xV_{1-x}O_{2-y}F_y$ (7) 187*e*.
of Fe monoaluminide, and Co and Ni monoaluminides (5) 141*g*.
of Fe-NiS ceramics (7) 181*b*.
field, effect on fluctuation conductivity of lamellar superconductors (5) 138*a*.
of rare earth orthovanadates, measurements (9) 235*b*.
of garnets, $Y_{2.66}Gd_{0.34}Fe_xAl_{0.677}Mn_{0.09}O_{12}$ (7) 180*b*.
of glass, As-Ge-Se (3) 56*h*.
xFe_2O_3, $(1\text{-}x)[BaO.4B_2O_3]$ (5) 107*j*.
of $MgFe_2O_4$ compacts, effect of MgF_2 (3) 73*c*.
of NiO (7) 181*a*.
of NMR, during spin-reorientation transition in $Dy\text{-}Fe_{0.998}Co_{0.002}O_3$ crystals (7) 183*f*.
of oxides, of Ir, Ti, and Ca, semiconducting (5) 110*b*.
para-, of Al_2O_3- and $Al(OH)_3$-based materials (5) 120*c*.
of Pb ferrite (9) 218*a*.
permeability, of solid solutions Ti_2O_3-Al_2O_3 and V_2O_3-Al_2O_3 (1) 41*g*.
of RFe_3, [R = Y,Dy,Ho,Er] (1) 41*h*.
of single-crystal particles, in ferromagnetics (1) 45*i*.

Magnetic properties *(continued)*
of $Sm_{0.4}Y_{2.6}Fe_{3.8}Ga_{1.2}O_{12}$, heat treatment behavior (9) 232*g*.
of solid solutions, in systems TiN-CrN and VN-CrN (9) 234*d*.
and structure, of $CoGeO_3$ (9) 234*g*.
during micron resolution, magneto-optical study (9) 234*i*.
and localization of Co^{2+} and Fe^{2+} in hexagonal ferrites (1) 41*j*.
of $ThMn_2Si_2$ and $ThMn_2Ge_2$ (1) 41*i*.
of superconductors, lamellar (1) 41*i*.
susceptibility, of ferromagnetic particles (9) 229*c*.
fluctuation, of superconductors and normal metals (5) 139*e*.
of glasses and crystals of system GeSe-Te (3) 57*j*.
of Ti oxides (7) 183*g*.
of transition metal crystals (9) 241*g*.
of UGa (1) 47*b*.
thermo-, of InSb-In films (3) 75*e*.
of UGa_2 (1) 41*g*.
of UPd_4 (3) 89*b*.
of $VO_{2-x}F_x$ (7) 183*f*.
of $xLaFeO_3$-(1-x)$SrMoO_3$, solid solution system (7) 181*d*.
of $YFeO_3$, crystals, and domain structure (5) 125*b*.
single crystal powders (9) 234*e*.
Magnetism, aftereffect, in magnetite (1) 26*e*.
anisotropy, of LPE garnet thin films, annealing effects (5) 124*d*.
of Y-Ho ferrite garnets (5) 125*e*.
annealing, in Li ferrite-manganite (3) 89*j*.
breakdown, effect on Hall effect in Be (1) 37*e*.
breakthrough, in graphite (7) 183*a*.
contrast, in secondary electron images of uniaxial ferromagnetic materials (3) 89*a*.
devices, using garnet epitaxial materials, P (9) 219*c*.
dilution, effect on critical temp. of $CuWO_4$ antiferromagnetics (5) 125*f*.
domain, in FeSi thin films (1) 26*e*.
observation by high voltage SEM (1) 32*c*.
in orthoferrites, X-ray diffraction topography (7) 172*g*.
walls, interaction with individual dislocations in YIG crystals (5) 139*b*.
domain structure, effect on nonlinear properties of ferrites (9) 230*g*.
in quartz and $AlPO_4$, electron microscopy (9) 231*h*.
electro-, concentration of nepheline-containing residues (3) 82*j*.
fields, effect on fluctuations of hot holes in Ge (1) 37*e*; effect on conductivity in Ge (1) 37*g*.
rotating, behavior of nematic liquid crystals in (1) 35*d*.
galvano-, phenomena in thin conductor layers (5) 140*a*.
head face device, using chemically machinable glass-ceramic bonding, P (3) 76*f*.
heads, wear resistant (7) 171*a*.
of La orthoferrites (5) 141*e*.
magnetization, saturation, of garnet single crystals (5) 140*h*.
magnetoacoustics, study of electron structure of Ga (9) 234*g*.
magnetochemical, characterization of $Fe(Fe_xCr_{2-x})O_4$ spinels (5) 141*g*.
magnetoresistance, of Al_2O_3 single crystals (3) 73*c*.
in amorphous Ge (1) 42*a*.
transverse, of uniaxially stressed p-Ge (1) 47*i*.
magnetostriction, of Li and Ni ferrites (9) 226*h*.
of YIG (1) 41*f*; of YIG (9) 226*h*.
of Y-Tb garnet-ferrites (9) 234*b*.
meta-, in UP-USe system (1) 42*f*.
moments, of $Fe_2A(A=Sc,Y,Zr,Hf)$, correlation with electrical resistivity (5) 136*a*.
saturation, of spinel ferrites (5) 140*h*.
order, in $Th(Fe_{1-x}Ni_x)_5$ system (5) 141*c*.
phase transition, in YVO_3 (1) 41*h*.
recording, ferrous Fe oxides in (5) 127*h*.
recording heads, coating ferrite bodies for, P (7) 172*a*.
structure, of Invar alloys (5) 142*h*.
of $SrTb_2Fe_2O_7$ (7) 184*f*.
study, on $Dy(Fe_xAl_{1-x})_2$ Laves phase compounds (3) 89*b*.
of Pb silicate glasses containing Mn (3) 59*j*.
super-, of GaAs (9) 240*f*.
in waste-water treatment (9) 221*j*.
Magnetite, Al-substituted, Moessbauer effect study (5) 142*i*.
magnetic aftereffect in (1) 26*e*.
Magnetization, compensation point, in Gd Fe garnet, magneto-optical studies (1) 42*a*.
in Fe-P alloys, temp. dependence (5) 146*g*.
of ferromagnetic particles, suspensions (1) 42*a*.
processes, near dislocations in single crystals of YIG (1) 43*i*.
Magnetoelasticity, interactions, in hematite, antiferromagnetic resonance study (1) 35*i*.
properties, of UGa_2 (1) 41*g*.
Magneto-optical properties, constants, and effects of ferrite garnets (9) 234*i*.
of garnet ferrites (1) 35*h*.
linear effects, in $TmFeO_3$ (9) 226*f*.
of optical fibers, index-gradient (7) 158*g*.
studies, of current flow in superconducting Pb films (3) 74*c*.
of magnetic structures during micron resolution (9) 234*i*.
of magnetization compensation point in Gd Fe garnet (1) 42*a*.
Magnets, Dy aluminide permanent, P (3) 76*j*.
ferri-, oxide, radiation effects in (1) 27*d*.
ferrite, P (1) 28*a*; P (5) 127*g*.
permanent, P (1) 29*b*; permanent, P (3) 76*a*.
ferrite-particle, flexible, P (1) 28*c*.
Magnets *(continued)*
permanent, for dc motors, design trends (1) 25*e*.
flexible, P (7) 172*f*.
material with Sr ferrite base, P (3) 76*j*.
sintered materials, P (3) 77*g*.
rare-earth-Co, sintered, P (3) 77*g*.
superconducting, high field, for scientific and industrial use (3) 80*e*.
Majolica, from Genoa, and Savona, Ancient Ligourian Ceramics, B (9) 242*d*.
Manganese, carbonate, antiferromagnetic, interaction between hypersonic and spin waves in (9) 233*c*; antiferromagnetic, stationary state of spin waves in (9) 239*g*.
concentration, effect on ZnS:Mn electroluminescence decay (5) 138*a*.
deposits, exogenous formation, and alteration of manganiferous silicates (3) 84*e*.
diarsenate, preparation, crystallographic data, and ir spectrum (9) 237*e*.
dioxide, electrolytic, continuous production, P (1) 28*f*.
divalent, aggregate structures, in NaCl, thermal re-solution and growth (5) 146*h*.
in beta-Al_2O_3, EPR (1) 38*a*.
$MnAl_2Si_2O_6(OH)_4$, carpholite, crystal structure (9) 228*a*.
$Mn_3(Cr)Sb$, monocrystal, thermal diffusivity (1) 47*f*.
Mn^{2+}, in Ge-Te and Ge-Te-Si glasses, ESR study (1) 8*c*.
in single crystals of YAG, orthoclase, and Mn silicate absorption spectra (9) 226*e*.
Mn_5Si_3, weak ferromagnetism (9) 242*d*.
ores, reduced, direct cooling, P (5) 134*h*.
oxide, change of color of thin powder streaks and phase transformation (9) 227*h*.
effect on hydration and hardening slag glasses (3) 53*d*.
structural and thermal analysis (3) 92*e*.
silicate, single crystals, absorption spectra of Fe^{3+} and Mn^{2+} in (9) 226*e*.
silicide, thermodynamic properties (7) 188*j*.
in steel, relation between form of SiO_2 and reactivity with (3) 68*d*.
sulfate, in pink stain (3) 71*a*.
Masers, action, and cavity maser amplifier described (1) 26*f*.
Masks and masking, black dielectric, on white substrate, P (9) 219*c*.
colored transparent, P (1) 13*i*.
flame, of glass articles for metal oxide film deposition, P (5) 112*i*.
method, P (5) 130*b*.
photo-, in microelectronics, optical and dimensional-measurement problems with (7) 171*c*.
for silk-screen printing, P (7) 173*a*.
Masonry, historical review, B (7) 191*e*.
Materials, ceramic, Chilean (1) 34*e*.
fracture toughness determinations by indentation (9) 232*c*.
for future technology (9) 242*h*.
and metallic, structure and properties, B (5) 148*g*.
and mineral, treatise, B (9) 244*h*.
new methods of making (5) 134*f*.
prestressing body, P (9) 222*c*.
in chemical perspective, B (7) 191*f*.
engineering, nature and properties, B (7) 192*b*.
fines, heating, P (9) 226*i*.
in industry, B (5) 148*g*.
plastic masses, transport phenomena, in screw extruders (9) 221*d*.
and public policy (1) 48*e*.
raw, ceramic, and clays, B (1) 48*c*; for ceramic industries in Japan (9) 225*e*.
modification (1) 34*j*.
moisture content, automatic measurement (9) 222*i*.
from South Africa (5) 134*a*.
science, annual review, Vol. 5, B (1) 48*h*.
handbook, metals, composites, and refractory materials, and nonmetallic materials, B (7) 190*g*.
lectures at Joint Center of Materials Science, B (7) 190*j*.
science and technology, B (9) 244*c*.
volcanic tuff, in household porcelain and faience tile (3) 72*c*.
Materials handling, apparatus, P (1) 31*j*.
Measurement, mass, study of anomalies (9) 223*f*.
metrication, initial step toward (7) 189*g*.
Mechanical properties, of Al_2O_3 (5) 140*e*.
of ceramics, bend tests, reduction of errors in (7) 176*b*.
elasto-, of U_4O_9 (3) 77*g*.
electro-, of $BaTiO_3$ (9) 217*c*.
of engineering ceramics (9) 242*a*.
of glass, photosensitive, and glass-ceramic (5) 105*i*.
in system $PbO-B_2O_3-V_2O_5$ during crystallization (5) 108*e*.
of materials, in terms of chemical bonding, B (7) 191*f*.
of MgO (7) 181*c*.
of $MgO-MgAl_2O_4$, eutectic (5) 141*i*.
of porcelain bodies (7) 169*c*.
of Si_3N_4, and SiC (7) 183*j*.
structural-, of plastic materials (3) 71*f*.
Vol. 1, B (5) 148*i*.
Melting, point, of Y_2O_3 in vacuum (7) 184*a*.
Memory, analyzer, and display system, for instrumental analysis (9) 223*e*.
effect, in GaTe single crystals (7) 171*j*.
in Nb-Al-Al_2O_3 tunneling structures (9) 235*e*.
magnetic, structures, P (9) 219*d*.
Mercury, CdTe, growth by liquid phase epitaxy, P (1) 28*d*.
range 2–14°K in, deviations from Matthiessen rule in (1) 36*i*.
in refractories, capillary motion (9) 208*c*.
selenide, doubly ionized native donors in (1) 38*f*.
Mercury selenide *(continued)*
elastic constants and ionicity (5) 138*d*.
Metals, and alloys, interfacial phenomena in, B (7) 190*i*.
-ceramic leadthrough, P (3) 76*g*.
class IV B, ore reduction, P (3) 83*a*.
coatings, on oxidic materials, P (7) 173*b*.
electrodeposition, B (3) 94*g*.
extrusion, lubricating and heat-insulating components for, P (7) 162*g*.
fiber-reinforced, P (3) 69*j*.
films, on ceramic and glass substrates (5) 126*j*.
$_F$32nonmetal interfaces (1) 26*f*.
grain-boundary diffusion, and boundary widths in (9) 232*e*.
halide, intervalence mixtures, conductivity and rectification in (9) 228*c*.
handbook, of materials science, B (7) 190*g*.
hard, ceramic-coated body, P (9) 212*f*.
coated body, P (9) 212*h*.
high-temp., spray-depositing and self-sealing ceramics for (9) 197*h*.
liquid, ceramics-, compatibilities and angles of wetting (1) 35*h*.
molten, treating, P (7) 168*a*.
non-, chemistry, B (1) 48*b*.
normal, fluctuation magnetic susceptibility (5) 139*e*.
pattern, adherent, P (7) 172*h*.
porous structure, ceramic-coated, P (7) 154*j*.
recovery, from solid waste (1) 9*h*.
updated cost evaluation, for treating municipal incinerator residues (5) 147*c*.
semi-, with paramagnetic impurities (5) 126*h*.
sheet, enameled, shaped aperture in, P (3) 55*c*.
structure, and properties, materials science proceedings, B (5) 148*g*.
transition, borides and nitrides, reaction with BN (1) 45*a*.
crystals, magnetic susceptibility anisotropy (9) 241*g*.
dichalcogenides, layered, intercalation of metallocenes in (1) 40*d*.
nitrides, knowledge and use (3) 91*g*.
oxide films, forming on substrate, and photomasks from, P (3) 76*b*.
redox equilibria in molten phosphates (3) 91*h*.
silicides, solid-phase synthesis (3) 75*c*.
vapor, apparatus and method for, P (5) 126*i*.
wear-resistant coatings, P (9) 214*j*.
Micas, ammonium-, hydrothermal synthesis (3) 88*j*.
Au on, adhesion (1) 26*f*.
dioctahedral, composition, effect on distribution of alkaline trace elements (5) 137*c*.
EuS growth on (7) 170*j*.
natural alteration, and reactions between released ions in mineral deposits (5) 142*a*.
phlogopite-calcite-quartz, stability (3) 92*a*.
radioactive dating (1) 34*h*.
thermal conductivity, as function of temp. and direction of heat flow (1) 47*e*.
transformation stages, in Morvan granites (3) 84*i*.
trioctahedral brittle, in system $CaO-MgO-Al_2O_3-SiO_2-H_2O$, synthesis and solid solubility (3) 92*e*.
Microscopes, electron, microprobe, of kaolinite composition (5) 136*c*.
scanning electron, in real-time study of friction and wear (3) 80*g*.
specimen coating device for, P (3) 77*h*.
Microscopy, chemical (9) 222*j*.
of clinker, and cement (9) 195*d*.
electron, of domain structure and diffuse electron scattering in quartz and $AlPO_4$ (9) 231*h*.
to examine mullite fraction in corundum refractories (1) 17*a*.
of Fe-stained kaolinite minerals (7) 181*g*.
of ground quartz (1) 38*a*.
of PbTe films (3) 73*h*.
phase determination from focal series and diffraction pattern in (3) 80*h*; of phase separation near spinodal boundary in Na borosilicate glass (7) 156*f*.
of polished diamond surfaces (7) 149*d*.
of pore structure in cement stone and polymer concrete (5) 99*j*.
and ultramicrotomy, of micaceous occlusions in kaolinite (3) 89*i*.
of $(NaCa)_nNb_nO_{2n+2}(4n \leq 4.5)$ homologous series (9) 236*h*.
field-emission, and field-ion, nonmetallic surfaces for (3) 90*b*.
of glazes, to determine stress inside (9) 215*d*.
ion (3) 80*f*.
light, and scanning, of red medieval stained glasses (1) 1*f*.
light optical, and SEM, study of brick bodies (5) 114*f*.
of materials, using electron, X-ray and ion beams, B (5) 148*a*.
measurement, of porosity of graphite electrodes (1) 32*g*.
of pores, differentiating between open and closed (3) 81*d*.
quantitative interference, for mineralogic and petrologic study (7) 175*g*.
scanning, of porosity of ferrite $ZnNi(Co)Fe_2O_4$ (7) 186*h*.
scanning electron, of ancient pottery (9) 193*d*.
of bloating of fired clays (5) 115*e*.
cathode-luminescent studies of GaP (5) 145*d*.
of cherts in relation to O isotopic variation of soil quartz (7) 186*g*.
of clay structure (3) 91*c*.
of domain structure of Na trihydroselenite crystal (3) 91*c*.

Microscopy scanning electron *(continued)*
energy-microdispersive X-ray microanalysis (3) 80*d*.
of expanded perlites (3) 53*i*.
of fabrics of sedimentary and hydrothermal kaolins in Mexico (5) 137*i*.
of fired calcareous clays (3) 63*j*.
high voltage, for observing magnetic domains (1) 32*c*.
in integrated circuit technology (3) 75*a*.
for origin of surface pits on quartz (1) 43*a*.
polyvinyl acetate-methyl alcohol solution as particle mounting medium for (3) 80*i*.
and transmission, in cement clinker studies (1) 3*d*.
surface measurements, in semiconductor technology and microelectronics (1) 32*j*.
transmission electron, of deformed rutile (5) 146*i*.
of ferroelectric domains in PZT ceramics (7) 180*h*.
of high temp. precipitation in $(Al_2O_3)_nMgO$ spinels (7) 188*c*.
ion bombardment in structural study of argillaceous rocks by (5) 130*j*.
of long-period structures in SiC (9) 229*j*.
of stacking faults in $MoSe_2$ (7) 188*e*.
transmission optical, single crystal studies of monoclinic⇌tetragonal transition in ZrO_2 (9) 236*f*.
Milling, ball, effect on Al_2O_3 powders (9) 221*b*.
wet, effect on Ba hexaferrite (9) 217*j*.
Mills, agitator, separating grinding elements and ground suspension in, P (1) 31*e*.
ball, continuous, dynamic response of holdup in (5) 130*g*.
large, drive system for (3) 51*b*.
and method of producing lining, P (9) 221*h*.
open-circuit, stabilizing suction (1) 3*e*.
with plain and grooved plates (7) 151*f*.
vibratory, operational parameters by radioactive tracing (5) 99*b*; vibratory, rod, Hardgrove, hammer, size reduction as rate process in (7) 175*b*.
cement, cooling in grinding circuit (3) 50*e*.
design (7) 150*i*.
chambers, degree of filling by grinding bodies (1) 2*c*.
drying, nonclogging centrifugal, P (9) 222*b*.
for wet granular material, P (3) 79*e*.
edge-runner (5) 129*j*.
grinding, agitator, P (1) 30*j*.
arrangement in, P (5) 130*a*.
fine, determining speed function (3) 77*f*.
improved batcher for (1) 2*i*.
with ring-shaped partitions, P (5) 130*c*.
for grinding minerals, P (1) 31*b*.
jet, comminution and structural changes in (5) 129*g*.
P (1) 31*b*; P (5) 130*d*.
particle collision in counter currents of air-dust mixtures in (7) 152*h*.
laboratory, mechanical activation of quartz and limestone in (5) 130*c*.
linings, boltless (7) 150*a*.
for minerals, P (9) 222*a*.
pin, high-speed, crushing and activation in (1) 30*e*.
rotary mixer, for grinding soft mineral raw materials (9) 221*b*.
trunnion bearings, with hydrostatic lubrication (3) 78*g*.
tube, for mixture of chromite and sintered magnesite (3) 78*e*.
unit, as basis for cement mill design (7) 153*f*.
vibrating, with heat-insulated grinding chamber, P (5) 130*h*.
kinetics of grinding in (7) 174*i*.
vibratory, cooling, P (3) 79*d*.
vibratory grinding, P (1) 31*f*.
vibrogyratory, P (1) 31*f*.
Mineralogy, and geology, of Yavi district, Jujuy Province (3) 82*c*.
of glauconite (5) 142*e*.
of Korvi attapulgite (1) 34*i*.
microscopy for, quantitative interference (7) 175*g*.
Minerals, analysis, physicochemical methods, B (7) 192*i*.
calcination, shock, P (3) 83*h*.
and ceramic materials, treatise, B (9) 244*h*.
in construction, for chemical and fertilizer industries, and clay, ceramic, refractory, and miscellaneous materials, B (3) 94*b*.
crystallinity (7) 180*i*.
dry pellets, P (3) 79*e*.
feldspar, physical properties, chemical and textural properties, B (1) 48*h*.
of kaolinite subgroup, indentification using X-ray powder method (5) 131*e*.
optical constants (5) 143*a*.
oxide, flotation in hot pulp, P (3) 83*c*.
polycomponent, equilibria, Nernst equation impossible to use for analysis (9) 233*e*.
polymeric dispersants for, P (1) 34*j*.
recovery, by froth flotation method, P (3) 83*c*.
updated cost evaluation for treating municipal incererator residues (5) 147*c*.
resources, and environment, particularly U, B (3) 95*f*.
Si in, by atomic absorption spectrometry (7) 175*j*.
supply, and demand (9) 225*h*.
surfaces, modified, P (7) 178*j*.
thin layers, device for mfg., P (3) 76*h*.
in U. S., ten-year supply-demand (1) 48*e*.
weakly magnetic, wet magnetic separation (9) 226*c*.
yearbook, metals, minerals, and fuels, B (3) 95*g*.
1973, B (7) 191*b*.
Mineral wool, cupola furnace for (9) 208*g*.
insulation product, P (7) 162*c*.
Mineral wool *(continued)*
slabs, thermal conductivity (9) 212*e*.
Mines and mining, Bureau, research 75, B (9) 242*e*.
kaolin, with dragline excavator (9) 225*a*.
limestone, and landscape preservation (3) 82*g*.
Queenston Shale, high-lime (5) 134*e*.
recycling land (5) 134*e*.
standards, effluent limitations guidelines, B (7) 189*h*.
Starnkogel quarry, of Steirische Montanwerke (5) 101*e*.
surface, responsible (5) 134*b*.
technology, research (1) 34*j*.
underground, for clay for brick (5) 134*f*.
Mirrors, protective coatings on, industrial methods for applying (9) 201*b*.
Zerodur telescope, blank with diameter of 3.6 m (7) 158*i*.
Mixers, granular material, P (7) 175*i*.
and metering, and conveying, P (1) 31*a*.
for optical wave-guide bundle, P (3) 61*i*.
for powders, P (5) 130*e*.
with ribbon-screw impeller, effect of liquid elasticity (3) 78*g*.
rotary, for dry powders, P (7) 175*c*.
silos, aerobottoms, new construction (1) 3*f*.
1300-ton, world record for quantity transport of pig iron (5) 117*j*.
for viscous materials, P (7) 175*j*.
Mixing, alkali fluoride mixtures, liquid, enthalpy (7) 182*a*.
in Al_2O_3 ceramics, evaluation by XMA (5) 139*h*.
rotational, of particulate and fibrous materials, P (5) 130*h*.
solid particles, multicomponent, discrete mixing model to study (3) 79*e*.
turbulent, in pipe flow, effect of small suspended particles, measurement (9) 223*g*.
Models, block diagrams, and fault trees, process failure analysis by (9) 242*a*.
mathematical-statistical techniques, to solve ceramic problems (9) 242*j*.
Modulators, prismatic, controlling thickness of multidielectric layers (1) 26*h*.
TIR diffraction, residual phase corrugation in (1) 27*g*.
Moessbauer effect, in Co_2MnSn alloy (9) 235*g*.
in FeS powder, magnetic-field-induced crystallographic texture (1) 42*g*.
in Hf, metallic, and HfO_2 (3) 90*d*.
of ilmenite, single crystals (5) 142*i*.
of Invar alloys (5) 142*h*.
of magnetite, Al-substituted (5) 142*i*.
of polymorphic transformations, in $BaTiO_3$-$BaSnO_3$ system (3) 90*e*.
study, of alkali borate glass containing Sn (1) 11*j*.
of cation distribution in $Fe_{3x}Cu_xO_4$ (3) 90*b*.
of transformations in clay by firing (7) 184*d*.
of $ZnMn_{1-x}Cr_xFeO_4$ spinels (1) 42*h*.
of YIG system, in applied magnetic field (3) 74*f*.
Moisture, content, of building materials, determination with pneumatic gages (9) 223*i*.
of fluent pastes, measuring, P (1) 33*a*.
measurement, P (9) 224*c*.
measurement with hygrometer, P (9) 224*c*.
measuring instruments, calibrating, P (9) 224*b*.
noncontacting determination, P (9) 224*b*.
of raw materials, automatic measurement (9) 222*i*.
of granular material, inorganic, measurement, P (5) 132*b*.
meter, and thermometer, P (1) 33*a*.
of soils, by nuclear equipment (7) 175*i*.
Molding, bathroom articles, P (3) 72*f*.
blow, for mfg. grinding wheels, P (9) 212*d*.
cold, pitch-bonded refractory, P (1) 21*f*.
compression, refractories, P (5) 121*f*.
injection, as shaping method for fine ceramic articles (5) 130*a*.
method, and powder, P (9) 216*b*.
refractory, P (5) 122*h*.
of Si_3N_4, and/or Si oxynitride, of great hardness, P (9) 213*b*.
Moldings, shell, using fluidized refractory particle bed, P (1) 22*g*.
sintered, P (1) 22*j*.
Molds, for applying lining, to metallurgical vessel inner wall, P (1) 21*g*.
automatic machine for, P (3) 79*c*.
automatic part producer, pattern board changing truck for, P (1) 31*b*.
carbon, baking or graphitizing, P (1) 21*i*.
carborundum-graphite, for lining of channel of induction hf furnaces (5) 116*a*.
casting, in ceramic industry, P (5) 124*g*.
filling method and apparatus, P (9) 216*b*.
reusable, P (1) 22*e*.
ceramic, hybrid binder, for, P (9) 214*a*.
with metal oxide barrier for casting, P (9) 212*g*.
for precision metal castings (9) 210*c*.
ceramic ware, P (1) 24*b*.
closure protective device, P (9) 222*a*.
compositions, P (9) 216*i*.
foamed polyurethane, P (9) 216*c*.
forming, P (7) 175*h*.
foundry, compositions, P (1) 21*a*.
and core, P (1) 21*a*.
and cores, P (3) 69*b*; and cores, and moldable mixture for, P (7) 167*j*.
mix, P (1) 21*b*.
P (9) 213*c*.
self-hardening mixture for, P (9) 214*f*.
wash, P (5) 121*j*.
Molds *(continued)*
foundry sand, coatings for, P (3) 69*h*.
glass, from Al_2TiO_5 ceramic (7) 155*b*.
release and lubricating composition for, P (5) 113*j*.
from tool steels (7) 160*i*.
hot-pressing, fiber-reinforced, P (3) 69*j*.
hot tops, P (1) 21*h*.
ingot, hot-topping slabs and sleeves, P (1) 21*e*.
lining slabs and sleeves, P (1) 21*e*.
P (9) 213*g*.
isostatic, and mandrel assembly for, P (7) 175*i*.
P (5) 130*c*.
isostatic pressing, P (3) 79*h*.
isostatic pressure, for electrical insulators, P (1) 24*d*.
metal casting, lining, P (7) 167*d*.
metallic, grinding device for, P (7) 175*g*.
and mold supports, P (7) 175*a*.
multisection, joining, P (5) 122*c*.
P (7) 170*g*.
plaster, properties, changes caused by $CaCO_3$ and NaCl (1) 22*h*.
for refractory ceramics (5) 101*a*.
porous, from limestone, P (9) 213*j*.
powder composition, and using for continuously casting, P (5) 122*d*.
for powder material workpiece, P (3) 79*i*.
of refractory castings, P (3) 70*b*.
release agent, apparatus for applying, P (1) 30*j*.
shell, ceramic, improved, P (1) 21*j*.
investment casting, P (3) 69*i*; investment casting, drying, P (9) 224*j*.
for turbine blade, P (7) 168*f*.
for utensils, high-quality (9) 221*c*.
working, for ceramics, P (1) 24*j*.
Molybdates, thermochemistry (5) 146*a*.
Molybdenum, boride, by chemical vapor deposition (7) 170*a*.
densification kinetics in hot-pressing (3) 64*b*.
carbide, on steel substrates, P (1) 5*g*.
compacts, sintering under constant heating rates, kinetics (9) 234*d*.
-C silicides, synthesis in rotating plasma reactor (5) 120*h*.
disilicide, for reduction of V_2O_5 (7) 185*j*.
in glass, determination (5) 105*a*.
in glasses, absorption and emission spectra (7) 156*h*.
MoS_2, Mg epitaxial layers on (1) 25*i*.
MoS_3Se^{2-}, vibrational spectra and force constants (9) 242*c*.
oxidation, kinetics (1) 43*a*.
oxide, purification process, P (9) 226*j*.
technical-grade, purifying, P (5) 135*b*.
selenide, stacking faults in, TEM studies (7) 188*e*.
substrates, reaction with boride coatings (5) 119*b*.
trioxide, d-electrons in (7) 180*f*.
films, dielectric permittivity and breakdown strength (3) 72*h*.
TZM alloy, thermal expansion match with oxides of perovskite and spinel types (5) 103*c*.
Monitors, in-core neutron flux, removing, P (3) 78*g*.
Montmorillonite, amino acid-, hydrothermal synthesis (3) 88*j*.
chlorite-, expansion-collapse characteristics (9) 231*i*.
Cu(II)-tetraalkylammonium, surface properties (9) 240*h*.
dielectric properties (5) 137*e*.
electron-optical study (5) 138*i*.
Na-, heterogeneity of charge density distribution in (3) 88*g*.
stability of Fe and Al hydrous oxides on (3) 92*a*
in soils, quantitative determination (3) 80*a*.
Morphology, of Ca sulfates (5) 142*j*.
of Ge-Si crystals (5) 142*i*.
Mortars, acid-resistant, and heat-resistant, for cellular glass, P (9) 204*b*.
anhydrite, P (9) 197*i*.
binding agents, organotin fungicides in, P (1) 4*b*.
$CaSO_4$, anhydrite, P (9) 197*j*.
cement, properties (5) 98*g*.
strength and strain energy release rate, effect of moisture (3) 51*j*.
tensile strength (7) 153*d*.
from cement compositions, P (9) 197*j*.
chloride in (5) 98*j*.
flow properties, and/or mechanical strength, binders for, P (5) 102*f*.
frozen wetted, bonding strength (3) 50*i*.
heat resistance, effect of Al gel (1) 2*j*.
with hydraulic compounds, strength and structure (7) 152*j*.
magnesite, with phosphate binder (9) 196*f*.
magnesite-phosphate, rheological properties (9) 211*c*.
MgO, high-temp. crushing strength (3) 51*j*.
mix, P (1) 4*b*.
P (3) 54*f*.
of polyester, catalyst, and filler, P (5) 102*f*.
Sarabond-modified (5) 114*j*.
for zircon materials (1) 18*i*.
Mullite, acid resistance (1) 16*f*.
-corundum, porous materials, by fast firing (9) 237*b*.
from kaolin mineral, fibrous (9) 235*i*.
moisture expansion (1) 9*j*.
nomenclature, problem (1) 44*i*.
O-deficient, structure, effect of reducing atm (5) 117*e*.
in porcelain, and chemical stoneware (3) 71*j*.
hard (3) 71*i*.
powder, and making of structural bodies from, P (3) 83*e*.
single crystals, ceramics reinforced with (1) 22*g*.
solubility, in HF (1) 20*c*.
synthetic, properties in relation to purity (1) 19*c*.

Neodymium, aluminate, synthesis, kinetics (9) 234*f*.
chromite, synthesis, kinetics (9) 234*g*.
effect, on dislocation velocity in CaF_2 (9) 230*d*.
fluoride, interaction with K tetrafluoroborate melts (9) 201*h*.
ion, environment in germanate crystals and glasses (1) 10*d*.
Nd^{3+}, in crystals, decay kinetics (1) 37*i*.
in glass, emission characteristic (1) 6*e*.
stimulated emission from, in $Ba_2NaNb_5O_{15}$ (1) 45*h*.
terms, structure in nitrate glasses (9) 203*a*.
oxide, sintering (5) 145*g*.
Neon, migration, in borosilicate glass (9) 200*i*.
Nepheline, -containing residues, electromagnetic concentration (3) 82*j*.
ores, mechanical and chemical enrichment (7) 178*i*.
syenite, substitution for feldspar in whiteware glazes (1) 23*a*.
Neutrons, diffraction, high temp. apparatus, to study refractory oxides (9) 208*a*.
by lattice planes of KH_2PO_4, effect of static electric field (1) 38*a*.
study of U_3Sb_4 (1) 42*a*; study of magnetic structure of $SrTb_2Fe_2O_7$ (7) 184*f*.
study of antiferromagnetic Ni-I boracite (1) 42*j*.
study of UGa_3 (1) 42*j*.
irradiation, effect in oxide ferrimagnets (1) 27*d*.
penetration, comparison of energy multigroup transport and diffusion theory solutions (1) 29*h*.
polarized, techniques for observation of ferromagnetic domains (7) 176*j*.
Nickel, -Al_2O_3, interface, capillary and mass transport at, correction (7) 180*g*.
-Al_2O_3 interface, capillarity and mass transport at (3) 84*d*.
beneficiating, segregation process for, P (3) 83*h*.
carbonate, antiferromagnetic, weak ferromagnetism (9) 242*d*.
decomposition, changes in physicochemical properties (1) 35*h*.
chloride, antiferromagnetic resonance in (1) 35*i*.
container, of highly enriched U bodies and Na, P (7) 174*a*.
deposition, electrochemical and electrolytic, on cast enamel parts (7) 153*i*.
hydrides, molar heat capacity (1) 42*h*.
-Mg olivine, cation ordering in (3) 84*g*.
monoaluminide, magnetic properties (5) 141*g*.
nickeliferous nontronite, in Brazil (7) 178*j*.
Ni-I boracite, antiferromagnetic, neutron diffraction study (1) 42*j*.
Ni_5Ge_3, films, short-range order in (9) 238*i*.
orthoborate, crystal structure (3) 85*b*.
oxide, adsorptive properties, effect of Li ions (1) 37*j*.
effect on properties and crystallization of MgO-Al_2O_3-SiO_2 glass (1) 6*f*.
elastic, magnetic and electrical properties (7) 181*a*.
and hydroxide, X-ray photoelectron studies (7) 189*a*.
initial sintering, effect of O pressure (1) 37*h*.
semiconducting, apparatus for studying electric field effect on (1) 35*b*.
single crystals, Hall mobility in (1) 39*i*.
spin-electron interactions and band structure (7) 186*j*.
structure of point defects in, effect of Cr (7) 180*i*.
silicide, thin films, stresses in (5) 126*j*.
Niobates, alkaline earth, single crystals, dielectric and optical properties (5) 137*i*.
ortho-, 3d-series element, synthesis (5) 145*j*.
Niobium, alloy, protective coating for, P (5) 122*f*.
boride, by chemical vapor deposition (7) 170*a*.
carbide, sintering behavior (1) 45*b*.
Young's modulus, effect of porosity (9) 230*e*.
carbonitride, formation from Nb_2O_5 and graphite (5) 139*i*.
crystals, coherent bremsstrahlung by electrons and positrons in (5) 136*a*.
dioxide, crystal growth and study of stoichiometry (1) 36*i*.
joining, to Al_2O_3 with Ni-Ti eutectic seal, P (1) 29*b*.
nitride, atom vacancies and effect on properties (5) 135*a*.
superconducting properties, effect of preparation conditions (3) 73*e*.
oxide, whiskers, selective growth (5) 145*b*.
pentoxide, effect on sintering SnO_2 (3) 86*d*; effect on electrical conductivity of TiO_2 (9) 229*i*.
reaction with Na and K carbonates (9) 238*e*.
T-, single crystals, by slow cooling method (9) 238*j*.
pure, dislocation behavior in, at low temp. (1) 37*a*.
single crystals, elastic moduli, effect of H and O (3) 86*g*.
sintering, effect of Fe group additives (9) 233*g*.
telluride, charge density waves and commensurate superlattices in (5) 137*h*.
Nitrates, inorganic, crystal structure transformations in (1) 36*a*.
Nitrides, cubic, in Ni-Ta-N system (9) 227*e*.
engineering properties, data, B (7) 190*d*.
films, P (3) 76*i*.
nitridation, of Al powder (5) 142*f*.
of high-purity Si (9) 235*g*.
kinetics of Si powder (1) 42*e*.
of Si, effect of O partial pressure (3) 86*f*; of Si powder (5) 142*g*.
rare earth, Knudsen cell vaporization (5) 141*h*.
sintered, P (1) 22*i*.
transition metal, knowledge and use (3) 91*g*.
reaction with BN (1) 45*a*.
Nitrites, inorganic, crystal structure transformations in (1) 36*a*.
Nitrogen, NO_x, reduction and removal from flue gas (3) 81*g*.
and SO_2, simultaneous removal from exhaust of combustion furnace, P (9) 225*a*.
oxide, graphite absorption (7) 182*i*.
Nitrogen oxide *(continued)*
removal from plant exhaust, P (5) 130*g*.
phosphate, mfg., $CaCO_3$ formed by blowing CO_2 in (5) 99*e*.
in Si_3N_4 (3) 79*j*.
Nomenclature, of halloysites (7) 189*f*.
refractories, in Comecon member countries (3) 67*g*.
Nonmetallic materials, handbook, of materials science, B (7) 190*g*.
Nuclear materials, ceramic powder, controlling surface area, P (7) 174*g*.
inorganic particles, porous, resistance to abrasion and crushing, P (9) 221*e*.
metallic oxides, decomposing, P (1) 30*d*.
pellets, high-density oxide, by hot-pressing, P (1) 30*f*.
power plant, with safety enclosure, P (5) 129*a*.
spheroids, P (1) 30*c*.
waste, ceramic-, composite, prepared by hot-pressing (5) 128*c*.
wear-resistant, P (1) 30*b*.
Nuclear reactions, cross sections, and technology, B (3) 95*h*.
Nucleation, crystalline, and atomic vibrations (1) 5*c*.
kinetics, of glass-forming liquids (1) 10*j*.
rate, of crystal needles in Na silicate glass (5) 110*e*.

Optical devices, acousto-, and Tl_3TaS_4 and Tl_3TaSe_4 crystals, P (9) 220*e*.
and Tl_3VS_4 and Tl_3NbS_4 crystals (5) 114*f*.
Optical materials, laser damage in, B (7) 191*d*.
Optical properties, of alkaline earth niobates, single crystals (5) 137*i*.
of As_2Se_3 (9) 229*i*.
of Bi, in germanate, borax, and phosphate glasses (1) 10*c*.
charge transfer, in CaF_2:Sm (5) 143*a*.
constants, of minerals and rocks (5) 143*a*.
of quartz, vitreous SiO_2, and neutron-radiated vitreous SiO_2 (7) 158*h*.
diffraction, study of sound waves in $LiNbO_3$ (9) 236*c*.
effect, of impurity associations in NaCl crystals (1) 38*i*.
effects, generated by nuclei polarization in semiconductors (9) 236*d*.
of EuS films (3) 75*f*.
of Eu^{3+}, in Na aluminosilicate glass (3) 58*i*.
of FeO (7) 181*e*.
of $Gd(ReO_4)_3.4H_2O$, single crystals (1) 42*i*.
of Ge_xTe_{1-x}, films (9) 240*b*.
of glass, PbO-GeO_2-WO_3 (3) 58*f*.
of section As_2Se_3-P_2Se_5 (3) 58*j*.
intensities, of Ho in tellurite, calibo, and phosphate glasses (7) 158*i*.
of In_2O_3 films (5) 143*b*.
of $LiIO_3$, alpha- (5) 143*d*.
of liquid crystal structures, twisted nematic (1) 42*j*.
of NdP_5O_{14}, high Nd-concentration laser material (7) 159*a*.
orientation, of excitons in cubic crystals (5) 143*c*.
in system of electrons and lattice nuclei in semiconductors (1) 42*i*.
of $SrTeO_3$, single crystals (7) 171*a*.
of $SrTiO_3$, and $BaTiO_3$ (5) 143*e*.
study, of defect centers in Si (5) 137*b*.
thickness, changes in PbTe freshly deposited layers (7) 171*f*.
transmittance, of PZT systems, effect of crystal lattice anisotropy (9) 217*b*.
of YIG, thin films (9) 217*a*.
Optics, coated, highly refractive oxide layer permeable to light for use in, P (1) 28*e*.
integrated, monolithic source for, P (1) 29*a*.
Ores, acid treatment, P (9) 242*b*.
Orthoferrosilite, crystal chemistry, high-temp. (7) 184*b*.
Oscillations, of critical temp., in thin-film layered structures of semiconductors-dielectrics (9) 236*a*.
Oscillators, quartz, with very low power consumption, P (1) 29*f*.
Ovens, coke, with high throughput, P (1) 21*f*.
P (9) 212*h*.
to produce 1 million tons (5) 133*a*.
and operation, P (9) 224*j*.
self-cleaning, catalytically assisted pyrolytic, P (9) 198*d*.
tunnel, P (9) 225*a*.
Oxidation, of Al_2O_3, electrodeposited Ni- (1) 26*j*.
of carbons (7) 184*c*.
catalytic, of CO on Pt (1) 40*e*.
of C blocks, and graphitized blocks (5) 118*f*.
of CO, catalytic activity of $La_{0.7}Pb_{0.3}MnO_3$ (1) 38*d*.
on NiO and ZnO, effect of external electric field (1) 37*a*.
effect, on direct-on enamel firing on decarburized steel (1) 4*c*.
of HfB_2 + 20 vol% SiC, composite (3) 65*c*.
high-temp., of ZrC and HfC (1) 40*d*.
of metals, and alloys, calculating rational values of parabolic rate constants for (1) 42*b*.
of Mo, kinetics (1) 43*a*.
of organic soils, by catalytic ceramic coatings, kinetics (9) 198*a*.
oxygenation functions, in C fibers (3) 65*f*.
photo-, anodic, of water, use of sintered bodies of TiO_2 in (3) 72*j*.
reaction, in $Ni_{0.7}Fe_{2.3}O_4$ ferrite (1) 43*d*.
resistance, of C fibers (3) 66*b*.
of Ti and Zr carbides in air (3) 68*f*.
-resistant, surface layer of Si_3N_4 articles (1) 43*b*.
of SiC, hot-pressed, effect of Al_2O_3 (1) 37*g*.
of Si_2ON_2, mass spectrometric analysis of vapor in (7) 183*h*.
Oxidation *(continued)*
of Si_3N_4, alpha-and beta- (5) 143*f*.
and SiC, effect of H_2O vapor (3) 86*h*.
states, in $VSBO_4$ (9) 236*b*.
thermal, of Si (9) 235*c*.
of TiB_2 (3) 65*e*.
of vermiculite, kinetic survey (5) 141*b*.
wet, of C fibers (3) 68*i*.
of ZnSe, in air (5) 143*g*.
of ZrC, after impact of shock waves (1) 43*c*.
Oxides, catalysis, significance of electronic properties and structure (7) 186*i*.
ceramics, oriented polycrystalline, by unidirectional solidification of melts (9) 236*i*.
crystals, surface preparation, work damage and microhardness (1) 46*h*.
electronic conduction, at high temp. (7) 181*h*.
electrons in (7) 181*j*.
engineering, heat mirrors for solar collectors (7) 189*g*.
film, doped, composition for forming, P (3) 76*e*.
films, acoustic properties, and use in acoustic surface wave devices (7) 170*i*.
rf-sputtered, luminescence during sputtering (7) 171*h*.
finely divided, P (9) 226*h*.
group II element, solid-phase interaction with PbO_2 (3) 91*g*.
laser machining, P (5) 130*d*.
materials, Ga solders to, adhesion (3) 74*f*.
mechanism, electrochemical phenomena related to and corrosion of refractories, bibliography (1) 5*f*.
metal, formation of primary nonstoichiometry in (5) 135*d*.
grains, hydrated, P (1) 30*h*.
materials, curing fissures of workpieces of, P (5) 127*c*.
P (1) 30*i*.
spherical particles, P (9) 213*j*.
-metal structures, electrical properties, role of interfaces in determination (7) 186*g*.
metal(II), reactions with V_2O_5, DTA (3) 77*g*.
metallic, finely divided, P (3) 83*b*.
mixed, finely divided, P (1) 34*f*; finely divided, P (5) 121*i*.
normal, and high-pressure, cation coordination in, bond strength effect (7) 179*h*.
and oxide films, B (9) 243*a*.
rare earth, and barium, physicochemical properties of compounds from (3) 90*e*.
refractory, crystals, surface features (1) 46*g*.
samples, Arrhenius plots for, and theory of defect equilibrium (3) 84*i*.
spectra, from electron microanalysis, X-ray analysis (3) 81*b*.
surface chemistry, ir studies (7) 183*b*.
tetrahedral, crystal chemistry (9) 228*j*.
thin films, for FET use (7) 170*a*.
on Pb-In alloys, Auger analysis (9) 227*a*.
TiO_2-containing, surface basicity, base strength and catalytic activity (3) 92*a*.
transition metal, calculating deviations from stoichiometry in (1) 42*a*.
effect on C_2S formation (1) 2*c*.
electronic structure (7) 182*f*.
low-temp. conductivity in (7) 183*d*.
of yttrium, and/or rare earth metals, P (1) 34*i*.
Oxygen, adsorption, by Sc oxides (1) 35*c*.
on ZnO thin films, thermoelectric power variation during (3) 75*d*.
ceramic, probe, P (3) 81*d*.
deficiency, in SiO_2 (1) 36*e*.
diffusion, in MgO-Al_2O_3 spinel (5) 143*g*.
in ZnO, study by single-spectrum proton activation (7) 179*g*.
effect, on elastic moduli of V, Nb, and Ta single crystals (3) 86*g*.
partial pressure, effect on Si nitridation (3) 86*f*.
photoadsorption, relation to number of hydroxyl groups on TiO_2 surface (7) 186*f*.
pressure, effect on sintering NiO (1) 37*h*.
partial, effect on growth of alpha-Si_3N_4 (1) 37*h*; partial, effect on physical properties of Cr-Al_2O_3 cermets (9) 210*h*.
self-diffusion, in $MgAl_2O_4$ (7) 186*h*.

Packaging, refractory blocks, perforated (9) 210*f*.
Palladium, alloy, for ceramic bonding, P (5) 124*a*.
in $BaTiO_3$, n-doped (7) 171*d*.
Particles, counting, conductivity cell for, P (7) 177*b*.
detector, P (1) 33*a*.
dispersion, contribution of convective dispersion and diffusion mechanisms (7) 174*g*.
electrostatically responsive, and magnetically, deposition on conductive surface, P (7) 172*i*.
finely divided, sintering, and resulting products, P (1) 31*e*.
granulometric curve, apparatus for determining, P (7) 177*a*.
liquid-suspended, apparatus for analyzing, P (1) 33*j*.
measurement, by light scattering at optical resonance (9) 223*j*.
micro-, quantitative chemical analysis by electron microprobe (5) 131*i*.
mineral, fine, separation from other particles, P (3) 79*f*.
mixing, rotational, P (5) 130*h*.
moisture content, measuring, P (1) 33*a*.
psi, and dyons (1) 44*b*.
size, in Al_2O_3, relation to fracture energy (3) 84*h*.
effect on reaction and sintering zircon and TiO_2 (7) 181*f*; effect on conductivity of Y_2O_3-ZrO_2 (9) 230*i*.
effect on figure of merit of solid solutions based on Bi_2Te_3

Particles size *(continued)*
(1) 39*d*.
effect on sintering CaF_2 (3) 86*g*.
effect on sintering TiB_2 powder (3) 65*c*.
of raw materials, determination by photoelectric method (9) 223*i*.
size distribution, of clays, in gravitational and centrifugal field (5) 131*a*.
of crushed products, estimation (1) 32*c*.
of Mn-Zn ferrite powders (7) 171*g*.
sizing, techniques, differences in (1) 31*g*.
small, suspended, effect on turbulent mixing in pipe flow, measurement (9) 223*g*.
spherical, containing reverse spike domains, magnetostatic energies (3) 89*b*.
hollow, prepared by spray drying, P (9) 222*c*.
suspended, device for measuring concentration, P (7) 177*c*.
for X-ray powder diffraction, by Debye-Scherrer method (9) 222*a*.

Periclase, cell dimension, and X-ray temp. factors, temp. and pressure effect (7) 181*h*.
dense sintered, from natural Brazilian magnesite (3) 82*g*.
molten, technology and properties of articles from (9) 211*f*.
-yttria bodies, properties and structure (9) 216*b*.

Perlite, acoustical board, P (9) 213*f*.
expanded, and bodies from, in Bulgaria (9) 211*c*.
SEM study (3) 53*i*.
expansion, and disintegration (5) 142*a*.
in floor tiles (3) 72*a*.
microspheres, P (9) 213*g*.

Perovskites, d-band, surface states and catalysis on (7) 184*d*.
-like compounds, electron microscopy of $(NaCa)_nNb_nO_{3n+2}(4n \leq 4.5)$ homologous series (9) 236*h*.

Petrology, microscopy for, quantitative interference (7) 175*g*.

Phase equilibria, boundaries, of NbN, effect of atom vacancies (5) 135*a*.
composition, of Fe_2O_3-MgO system (1) 43*f*.
diagrams, of Al-Ga-P system (1) 43*f*.
Al_2O_3-CaO-MgO-SiO_2 system (9) 237*i*.
of Al_2O_3-CeO_2 system (1) 43*g*.
of Al_2O_3-La_2O_3 system (1) 43*h*.
of As_2S_3-$AsBr_3$ and As_2Se_3-$AsBr_3$ (5) 143*j*.
BiI_3-Bi_2O_3, T-X projection (1) 47*j*.
of binary and ternary condensed eutectic systems (3) 84*i*.
of CaO-FeO_n system (9) 231*e*.
of CdSb semiconductive compound (3) 90*j*.
for ceramists, 1975, B (3) 95*j*.
of $CuFe_2O_4$-$CuAl_2O_4$ system (7) 184*e*.
of GaAs-ZnSe system (5) 143*j*.
of Hf-W-C system (7) 184*e*.
of $Mg(VO_3)_2$-KVO$_3$, $Mg(VO_3)_2$-$Sr(VO_3)_2$, and Ca-$(VO_3)_2$-$Sr(VO_3)_2$ systems (9) 236*h*.
Mn-N, high-temp. X-ray diffraction study (9) 233*e*.
for $NaPO_3$-$Pb(PO_3)_2$ system (9) 229*c*.
of $NaPO_3$-$RbPO_3$ system (9) 236*i*.
optical orientation, of acid and intermediate plagioclases (9) 228*d*.
p-T-x, of system In-As (5) 144*i*.
subsolidus, of solid solutions in system HfO_2-MgO (9) 229*d*.
use in synthesis of electronic materials (3) 75*i*; use in technical materials, B (7) 192*e*.
of V_2O_5-RbV_2O_5 system, and composition (1) 43*e*.
in HfO_2 powders (5) 143*h*.
relations, Cr oxide-containing systems (5) 143*f*.
in HfO_2-La_2O_3 and HfO_2-Nd_2O_3 systems (9) 236*j*.
high-temp., in system La_2O_3-WO_3 (7) 182*c*.
in PbS-Cu_2S-Sb_2S_3 system, and synthesis of meneghinite (3) 90*j*.
in systems MgO-ZnO-SnO_2, NiO-ZnO-SnO_2, and MgO-NiO-SnO_2 (7) 184*i*.
in Y_2O_3-TiO_2 system (5) 143*f*.
of richterite, and ferrorichterite (3) 90*j*.
separation, of glasses in system SrO-B_2O_3-SiO_2 (5) 143*f*.
of Sm bromides (9) 237*i*.
systems, "HfO"-HfN-HfC (7) 185*e*.
"ZrO"-ZrN-ZrC (7) 185*e*.
AbO_x, nonlinear optics-oxide (7) 187*d*.
Ab-An-NaCl-$CaCO_3$, stability of scapolite in (5) 145*c*.
Ag-S, solid state reaction in, kinetic and electrochemical studies (1) 41*c*.
alkali metal hydroxide-H, isotopic (1) 41*a*.
Al_2O_3-CaO-Na_2O, reaction of Cr_2O_3 in (5) 144*d*.
Al_2O_3-Ga_2O_3, liquidus curve in, measured with solar furnace (1) 41*a*.
Al_2O_3-metal, friction, effect of adsorbed films (9) 230*e*.
anorthite-diopside-enstatite and anorthite-diopside-forsterite, phase boundary junctions (5) 135*g*.
$BaTiO_3$-$BaSnO_3$, polymorphic transformations in, Moessbauer effect (3) 90*e*.
$BiCl_3$-$GaCl_3$ (1) 43*j*.
$BiCl_3$-$TeCl_4$ (1) 46*e*.
BiTe-In(Ga,Sn)Te (5) 146*f*.
Bi_2O_3-Sm_2O_3 eutectoid, transformational superplasticity in (1) 47*g*.
borosilicate-Si, diffusion parameters (1) 40*h*.
B_2O_3-Si, interface reactions (1) 40*g*.
$CaCO_3$-Al_2O_3-$FeSO_4$, formation of $3(CaO.Al_2O_3).CaSO_4$ in (5) 139*g*.
$CaCO_3$-$ZrSiO_4$, MgO-$ZrSiO_4$, and $CaCO_3$-MgO-$ZrSiO_4$ (9) 225*j*.
CaF_2-CaO-MgO-Al_2O_3, liquidus phase relations in (5) 141*j*.

Phase equilibria systems *(continued)*
CaF_2-YF_3, interdiffusion in (1) 40*d*.
CaO-Al_2O_3-SiO_2, precipitated crystals from glasses and compositional ranges in (1) 35*b*.
CaO-Fe_2O_3-Al_2O_3-SiO_2 (7) 187*f*.
CaO-MgO and $Ca(OH)_2$-$Mg(OH)_2$, solid solutions (7) 152*g*.
CaO-MgO-Al_2O_3-SiO_2 (7) 185*h*.
CaO-MgO-Al_2O_3-SiO_2-Na_2O-H_2O, melting relations in (9) 235*d*.
CaO-MgO-FeO_n, in presence of metallic Fe (7) 182*c*.
CaO-MgO-SiO_2-H_2O, synthesis of inferred phase relations (5) 142*e*.
CaO-MgO-SiO_2-H_2O-CO_2, thermodynamic study (5) 139*b*.
CaO-PbO-SiO_2 (5) 143*a*.
$CaSO_4$-H_2O, kinetics of dehydration reactions in (3) 89*h*.
Ca_2SiO_4-$Ca_3Mg(SiO_4)_2$, crystallography of $Ca_7MgSi_4O_{16}$ in (5) 136*j*.
Ca_2SiO_4-Sr_2GeO_4, solid solutions in (9) 239*g*.
$CdSe$-Cr_2Se_3, and formation of ferromagnetic semiconducting spinel (1) 24*e*.
CdS-CdSe, tabular crystals in, from gas flow (5) 144*g*.
CdS-CdSe, vapor pressure in (5) 147*b*.
of chlorides, tungstates, and metaborates of Li and Na (1) 44*d*; of chlorides and iodides of K, Rb, and Cs (1) 45*c*.
(CoO, MgO)-Al_2O_3-Cr_2O_3-Fe_2O_3, formation and color of spinel solid solution in (1) 39*e*.
Cr-O, at high O pressures (5) 145*j*.
$Cs^+,K^+,Rb^+,Te^{4+}||I^-$ (1) 46*e*.
CsF-Cs_2TiF_6, physicochemical properties of fluorotitanates in (1) 43*g*.
Cs-U-O (7) 173*i*.
Cu-Fe-S, isothermal phase relations in (7) 183*f*.
Cu-S, Cu-Se, and Cu-Te, thermal emf of melts in (1) 47*h*.
Cu_2GeSe_3-Ge, cubic phase in (5) 137*a*.
Cu_2S-Fe (1) 46*f*.
electronically conducting oxide (7) 181*h*.
Eu_2O_3-Gd_2O_3-Ta_2O_5 (5) 146*a*.
Fe-Ni and Fe-Co oxides, low-temp. spinel-formation (9) 234*b*.
Fe_2O_3-PbO-SiO_2, dielectric constant, ir absorption and Raman effect (9) 229*e*.
Fe_2O_3-TeO_2, crystalline phases of Te(IV) in (7) 184*f*.
with GaAs participation, calculation of solidus curves in (5) 135*e*.
GaAs-ZnSe; Ge-In-Ga (5) 146*b*.
$GaCl_3 + 3Tl = 3TlCl + Ga$, thermal analysis (1) 47*e*.
Ga_2O_3-MgO, Al_2O_3-NiO, Al_2O_3-AlN, and Al_2O_3-Li_2O, decomposition of spinels in (5) 142*b*.
Ge-Sn-As, alloys (5) 135*g*.
Ho-Ho(III) chloride (5) 144*c*.
$KAlSi_2O_6$-$NaAlSi_3O_8$-Al_2SiO_5-SiO_2-H_2O-HCl, solid-fluid equilibria (1) 45*d*.
KCl-$CaCl_2$, KCl-$SrCl_2$, and KCl-$BaCl_2$, electrical conductivity (3) 87*a*.
KF-$PbZrO_3$-$NdTaO_4$ and "$Pb(BO_2)_2$"-$PbZrO_3$-$NdTaO_4$ (1) 47*a*.
$KSbSe_2$-Sb_2Se_3 (1) 46*f*.
$KSbS_2$-Sb_2S_3 (1) 46*g*.
K_2O-BaO-SiO_2 (7) 187*h*.
K_2O-CaO-Al_2O_3-H_2O, isothermal section (1) 41*a*.
$LaCl_3 + CaO = LaOCl + CaCl_2$ (1) 46*g*.
LiCl-$PbCl_2$-UCl_4 (1) 46*h*.
LiF-AlF_3-Na_3AlF_6 (7) 184*g*.
$LiPO_3$-NdP_3O_9 (5) 143*e*.
Li_2O-BaO-SiO_2 (3) 92*g*.
Li_2O-B_2O_3-H_2O, compounds in (1) 36*c*.
Li_2O-TiO_2-Al_2O_3, microwave dielectric materials in (3) 74*e*.
Ln_2O_3(LnO)-SiO_2, Ln_2O_3-GeO_2, Ln_2O_3-ZrO_2, synthesis and physicochemical properties (3) 92*e*.
metal-dielectric-semiconductor, emf development in (1) 36*h*.
metal-insulator-metal, defect thin-film, nonsteady-state phenomena in (7) 171*c*.
metal-thin insulator-semiconductor-metal, impact ionization in (9) 218*i*.
of metaphosphates and orthophosphates of Li and K, fusibility (1) 39*b*.
MgO-Al_2O_3-Fe_2O_3-Cr_2O_3, periclase solid solution, exsolution precipitates in (9) 232*a*.
MgO-Al_2O_3-Fe_2O_3-SiO_2, glass-ceramic materials in (9) 239*a*.
MgO-Al_2O_3-SiO_2, enthalpy of formation of compounds in (5) 139*c*.
MgO-Al_2O_3-SiO_2-H_2O, aggregate refractive indices and unit cell parameters of synthetic serpentine in (3) 84*d*.
MgO-CO_2-H_2O and CaO-MgO-CO_2-H_2O, reevaluation of free energy data (7) 186*j*.
MgO-ZnO-Fe_2O_3 (5) 143*e*.
Mg-Mn, ferrite formation in (5) 139*c*.
Mg^{2+}-Al^{2+}-NO_3^-, Mg^{2+}-Al^{3+}-Cl^-, Mg^{2+}-Al^{3+}-ClO_4^-, Ni^{2+}-Al^{3+}-Cl^-, and Zn^{2+}-Al^{3+}-Cl^- (7) 187*d*.
Mg_2SiO_4-SiO_2, at pressures up to 25 kbars (3) 92*f*.
M^IF-M^{II}-Ln_2O_3 (M^I = Li,Na,K,Rb; M^{II} = Mg,Ca,Sr,Ba; Lu = La,Nd) (9) 241*d*.
mixed powder compact, between ZnO and Al_2O_3, kinetic study (1) 41*d*.
$MnCl_2$-TiCl$_3$-KCl (1) 46*i*.
Mn_3O_4-$MgAl_2O_4$ (5) 146*c*.
mullite-corundum, solid-phase interactions in (3) 68*b*.
Na/Ca-montmorillonite, water vapor isotherms and heat of immersion (5) 147*g*.
$NaAlO_2$-Al_2O_3 (3) 90*a*.
NaCl-KCl-$MgCl_2$-$CaCl_2$-H_2O and NaCl-$MgSO_4$-H_2O, thermodynamics (5) 146*d*.
NaF-KF-SiF_4 (9) 241*a*.
NaF-ZnF_2-CrF_3, partial system Na_3CrF_6-NaF-$NaZnF_3$ (7) 188*c*.
$NaPO_3$-$Ba(PO_3)_2$ (9) 241*b*.
Na,Rb,Pb||Br (1) 46*i*.
Na_2CO_3-K_2CO_3-$CaCO_3$; NaF-NbO_2F (5) 146*d*.
Na_2O-B_2O_3-V_2O_5 (1) 47*b*.
Na_2O-MgO-CaO-$Al_2O_3TiO_2$-H_2O (9) 227*b*.
Na_2SiO_3-Li_2SiO_3 (5) 143*c*.
Na_2SiO_3-Li_2SiO_3-SiO_2 (5) 143*d*.
Na_2SiO_3-$SrSiO_3$ and Na_2SiO_3-CaSiO$_3$-$SrSiO_3$ (3) 91*h*.
Na_2WO_4-K_2WO_4-WO_3 (5) 146*g*.
Na_3AlF_6-Ta_2O_5 and Na_3AlF_6-$NaTaO_3$, diagram (9) 241*e*.
NiO-CuO, thermodynamic functions of mixing in (7) 188*i*.
NiO-TiO$_2$, electrical conductivity (7) 181*b*.
NiS-S, above 980°C (7) 184*j*.
Ni-B-Si (7) 188*d*.
Ni-Ta-N, composition of cubic nitride in (9) 227*e*.
$nSiO_2$-nAl_2O_3-xH_2O, catalytic activity in disintegration reaction of cumene hydroperoxide (3) 84*f*.
oxide, solid state reactions in (3) 91*j*.
Pb zirconate-Pb titanate, intrinsic nonstoichiometry in (7) 183*c*.
PbO-Na_2O-SiO_2, thermodynamic study (7) 188*a*.
PbS-Sb (5) 146*e*.
Pb-Sn-Te, temp.-composition diagram (1) 47*a*.
Pr_2O_3-W-O_2 (1) 46*i*.
$RbAg_4I_5$/WO_3, solid state electrochromic cell (3) 75*d*.
RbF-Rb_2TiF_6, physicochemical properties of fluorotitanates in (1) 43*g*.
Rb_2MoO_4-Rb_2SO_4 and Cs_2MoO_4-Cs_2SO_4 (9) 241*e*.
Rb_2SiF_6-RbF and Cs_2SiF_6-CsF (9) 241*e*.
Sb_2O_3-WO_3 (7) 187*i*.
silicate, multicomponent (1) 42*i*.
SiO_2-AlOOH-Fe_2O_3-H_2O, and kaolinitic stage of goethite facies (7) 187*j*.
SiO_2-Al_2O_3, stable and metastable (3) 92*b*.
Si-Al-O-N, new quaternary phase in (7) 184*i*.
Si_3N_4-AlN-SiO_2, Si_3N_4 solid solution in (7) 186*j*.
Si_3N_4-Al_2O_3, technological investigations (7) 188*a*; Si_3N_4-Al_2O_3, X-ray study (7) 189*d*.
Si_3N_4-SiO_2-BeO-B_3N_2 (1) 43*a*.
Sn oxide-Sb oxide, versatile uses (3) 83*h*.
SnO-SiO_2, activities of SnO in (9) 226*f*.
solid solution xLaFeO$_3$-(1-x)SrMoO$_3$ (7) 181*d*.
solvents-ferrite, fusible solvents in, physicochemical study (9) 237*d*.
$SrAl_2Si_2O_8$-$SrGa_2Si_2O_8$ and $SrGa_2Si_2O_8$-$BaGa_2Si_2O_8$ (5) 146*c*.
SrO-B_2O_3-SiO_2, subsolidus (3) 92*j*.
SrO-PbO-SiO_2 (7) 184*g*.
thin film, kinetics of photostimulated electron exoemission from (3) 89*i*.
$Th(Fe_{1-x}Ni_x)_5$, magnetic order in (5) 141*c*.
TiB_2-TiC and ZrB_2-ZrN, creep in (1) 36*g*.
$TiCl_4$-NH_3-H_2-N_2, vapor phase reaction for fine TiN powders (3) 87*g*.
TiC$_x$-TiB$_2$, reactions in (5) 144*g*.
TiN-Co and TiN-WC-Co, liquid phase sintering (1) 41*j*.
TiO-TiN-TiC (7) 188*a*.
TiO_2-MnO_x, structural, thermogravimetric, and magnetic study (7) 188*a*.
Ti-B-C and Ti-Si-C, synthesis of carbide phases in (5) 145*i*.
UP-USe, metamagnetism in (1) 42*f*.
U-S (1) 29*j*.
U-Se and U-Te (9) 220*f*.
U-S-Te, interactions in (9) 220*d*.
V and Ta, emf measurements (9) 231*d*.
V_2O_5-M_2O_3(M = In,Tl), electrophysical properties (9) 231*b*.
V_2O_5-$NaVO_3$ (9) 241*c*.
W/PtSi/Si, thin-film, formation of WSi_2 in (7) 183*a*.
WC-TiC, precipitation studies in (1) 44*b*.
ZnO-Al_2O_3, spinel solid solution in, composition and structure (7) 180*d*.
ZnO-MgO-GeO_2, thermodynamic relations in (7) 188*a*.
ZnO-TiO$_2$-SiO$_2$, ZnO-rich area (3) 93*j*.
ZnSe-MnSe, miscibility, phase, and structure relations in (3) 90*a*.
$ZnSiAs_{2-x}P_x$, electrical conduction in (7) 170*h*.
Zn-Cu-Se, ZnSe phase in (5) 144*i*.
ZrC-ZrB_2, reactions in (3) 91*f*.
ZrO_2-SiO_2-Na_2O-H_2O, mineralogy in (5) 139*a*.
ZrO_2-SrO, SrZrO$_3$-CaZrO$_3$, and SrZrO$_3$-BaZrO$_3$, liquidus curves in solar furnaces (7) 186*a*.
ZrO_2-Y_2O_3 (5) 146*e*.

transformations, of BN at high temp. and pressure (7) 184*i*.
during firing of Zr and AlF_3 charge (9) 237*a*.
in less common materials (1) 43*c*.
in oxides (1) 43*c*.
in semiconductors of type A_4B_6 (1) 43*d*.
unity amid diversity (5) 143*i*.

transitions, insulator-metal (7) 183*c*.
metal-nonmetal (7) 184*b*.
metal-semiconductor, in n-type Si (1) 42*f*; metal-semiconductor, in VO_2 (9) 233*h*.
in multivalley semiconductors in magnetic field (1) 43*c*.

Phase equilibria transitions *(continued)*
in $PbZrO_3$ (3) 90*j*.
polymorphic, in ceramics, classification scheme (3) 85*b*.
semiconductor-metal, in $Cd_2Os_2O_7$ (7) 186*i*; semiconductor-metal, in $V_{0.996}Al_{0.004}O_{2+x}$ (9) 238*g*.
temp., in mixed-crystal systems near $SrTiO_3$ (1) 36*b*.
in ZrO_2-Sc_2O_3 system (9) 237*b*.
Phases, retardation plate, current-controlled (1) 25*c*.
Phenacite, Gibbs energy of formation (7) 182*h*.
Phlogopite, coincidence boundaries in, and zinnwaldite (5) 136*b*.
Phosphates, Brazilian (1) 34*b*.
complex, P (1) 21*g*.
Florida, slimes (5) 133*e*.
molten, redox equilibria of transition metals and basicity in (3) 91*h*.
P (7) 167*h*.
rock, fluosilicic acid acidulation (1) 34*f*.
reducing F content, P (9) 226*a*.
western, solvent extraction, and HCl acid digestion (7) 178*g*.
Phosphoric acid, by-product brine raffinate, recovery of F, U, and rare earth metal values from, P (5) 135*b*.
by H_2SO_4 digestion, of Florida land-pebble matrix (5) 134*g*.
ortho-, interaction with kaolin and fireclay (3) 89*g*.
reaction with electrically melted corundum (3) 67*a*.
Phosphors, alkaline earth metal aluminosilicate, Eu-activated, P (1) 28*j*.
Ba Ca orthophosphate, Mn- and Ce-activated, P (1) 28*h*.
Ca Li silicate, P (3) 83*j*.
halophosphate, substituted, P (3) 77*i*.
Y_2O_3, preventing degradation, P (3) 77*b*.
ZnS crystal, synthesis, effect of pressure (5) 138*d*.
Phosphorus, diffusion, processes in SiO_2 films (3) 74*a*.
doping, solid diffusion sources for, P (5) 128*e*.
pentoxide, effect on crystallization of Li_2O-ZnO-SiO_2 glass (3) 57*d*; effect on Ti powder enamels for cast iron (9) 198*c*.
slag, mineralizing action during calcining of high-alkali raw material (1) 3*e*.
in TV tube glass (7) 155*j*.
Photochromic materials, vol holograms in (5) 111*h*.
Photoconductivity, of $CdCr_2Se_4$, single crystals (9) 237*c*.
effect, in CdS-Cu_2S photovoltaic cells (3) 74*a*.
of glass, in Te-Se-Sb system (1) 43*e*.
impurity, in p-InSb, effect of heat treatment (5) 137*h*.
material, comprising solid solution of (Cd,Pb)S, P (1) 29*c*.
materials, and/or luminescent, P (5) 113*h*.
study, of defect centers in Si (5) 137*b*.
in ZnS, thin layers (1) 26*j*.
Photoelectricity, for determination, of particle size of raw materials (9) 223*i*.
Photography, electro-, conductive breakdown filaments in (1) 27*a*.
high-speed, of switching and anisotropic saturation velocities in garnet film (1) 26*d*.
macro, or micro (1) 32*i*.
Photometry, flame-, estimation of Na and K in Ca-rich glasses (1) 8*h*.
Photovoltaic effect, in CdTe (3) 72*j*.
devices, using transparent contacts (5) 107*i*.
high voltage, in $BaTiO_3$ and PLZT ceramics (7) 171*c*.
in ZnS, thin layers (1) 26*j*.
Physical properties, electro-, of ceramics in systems V_2O_5-M_2O_3(M = In,Tl) (9) 231*b*.
of glass, PbO-GeO_2-WO_3 (3) 58*f*.
of Se (5) 139*a*.
of lanthanide oxides (3) 87*g*.
of LiF, effect of impurity traces (5) 137*i*.
of MgF_2, reproducibilities (3) 91*a*.
surface, of solids (1) 46*h*.
thermo-, automated electronic system for measuring (3) 79*f*.
measurements on transition-metal tungstates (7) 188*d*.
of test specimens, determination (3) 80*g*.
Physicochemical properties, of compounds, formed by rare earth and barium oxides (3) 90*e*.
of fluorotitanates, in RbF-Rb_2TiF_6 and CsF-Cs_2TiF_6 systems (1) 43*g*.
of $LiIO_3$, alpha- (5) 143*d*.
of refractory compounds, in systems Ln_2O_3(LnO)-SiO_2, Ln_2O_3-GeO_2, Ln_2O_3-ZrO_2 (3) 92*e*.
studies, of fusible solvents in solvents-ferrite systems (9) 237*d*.
study, of $CaY_4(SiO_4)_3O$ (1) 43*g*.
of ceramic clays from Zamora Province (1) 43*h*.
transformations, of V_2O_5 under shock wave action (9) 237*e*.
Physicomechanical properties, of corundum, effect of B_2O_3 (9) 209*b*.
of slag products (9) 195*h*.
Piezoelectricity, body, P (7) 173*e*.
thin, metallically bonded, P (1) 28*c*.
ceramic compositions, P (7) 173*e*.
ceramic plates, generation of thickness-twist modes in (9) 232*d*.
surface elastic waves on, under bending stress (3) 75*g*.
ceramics, compositions, P (3) 77*a*.
P (1) 29*c*.
propagation of surface waves on (9) 218*a*.
from PZT powder, P (9) 219*b*.
constants, of $LiNbO_3$ crystals (9) 230*j*.
disk, multielectrode composite, electrical circuit (9) 217*c*.
key, P (1) 29*d*.
magnetic film-, substrate configuration, magnetoelastic surface waves in (9) 234*h*.
Piezoelectricity *(continued)*
in $NaH_3(SeO_3)_2$, crystals (5) 125*h*.
oxide materials, P (3) 77*a*.
polarized ceramic, P (5) 128*a*.
properties, of $SrTeO_3$ single crystals (7) 171*a*.
in solids, ceramic models for (1) 24*f*.
thin film, P (5) 128*h*.
thin films, of Bi_1-$2PbO_{19}$ (9) 237*f*.
Pigments, aluminosilicate, modified precipitated, P (3) 83*d*.
annealed, P (7) 178*f*.
blue, and bluish-green spinel-type, synthesis (3) 71*h*.
calcined clay, P (7) 178*g*.
of Ce(IV) oxide-Pr(IV) oxide system (1) 23*b*.
Ce oxide-Mo(VI) oxide system, color, effect of alkali metal and alkaline earth oxides (9) 215*c*.
of CeO_2-MoO_3 system (5) 124*a*.
ceramic, classification of structures (7) 168*g*.
Cr yellow, P (5) 134*h*.
inorganic, modern (7) 169*d*.
opacity modified, P (1) 24*f*.
pelletizing, P (5) 130*e*.
pigmentary oxide, coated particles, P (3) 72*e*.
pink coloring, P (9) 216*d*.
Pr-containing, P (1) 24*g*.
resin-, mixture, ceramic design with, P (5) 124*g*.
spinel, green, based on Mg-chrome (7) 169*f*.
TiO_2, with improved wettability and dispersibility, P (7) 179*c*.
oxide-coated, P (5) 130*e*.
P (3) 83*j*; P (5) 124*b*; P (7) 179*c*.
surface treatment, P (5) 124*b*.
willemite, containing NiO additives (1) 23*i*.
Fe-containing, synthesis (3) 71*i*.
Mn-containing, with mineralizer additives (9) 215*d*.
yellow Fe oxide, transparent, P (3) 72*h*.
Zr, containing Pr oxide, P (1) 24*j*.
Pipe, clay, extruder for, P (1) 16*b*.
fitting molding methods and apparatus, P (9) 207*g*.
clay tile, joint seal, P (9) 207*g*.
joint, P (9) 207*h*.
-making machine, P (1) 31*c*; P (3) 63*e*.
plain-ended, coupling, P (3) 63*d*.
sewer, extrusion (3) 62*j*.
stoneware, modern technique mfg. (9) 207*f*.
Plasters, $CaSO_4$, hemihydrate and aqueous resin emulsion, for surfacing, P (7) 153*d*.
gypsum, with addition of monomer, properties (7) 152*a*.
Plasticity, hydro-, of ceramic masses, models for evaluation (7) 170*b*.
Plastics, materials, structural-mechanical properties (3) 71*f*.
thermo-, alkali metal silicate, P (3) 60*f*.
Platinum, in $BaTiO_3$, n-doped (7) 171*d*.
CO oxidation on (1) 40*e*.
corrosion, and wetting by optical glasses (1) 6*h*.
effect, on catalytic activity of $La_{0.7}Pb_{0.3}MnO_3$ for CO oxidation (1) 38*d*.
in glass, metaphosphate (1) 11*a*.
-ZrO_2, interface reactions (3) 93*a*.
Plutonium, fuel, adjacent burnable poison, P (5) 129*b*.
oxide, P (3) 78*j*.
$^{238}PuO_2$, particle size (3) 78*b*.
^{239}Pu, fission cross section in, for energy range 8-16 MeV (5) 128*g*.
Poisson's ratio, of glass, calculation (1) 5*f*.
Polarization, electrode, of soda-lime and Na silicate glasses (5) 106*g*.
Polarography, to determine, ferrous, ferric and total Fe in standard rocks (1) 33*d*.
Pollution, air, air foil system for smokestacks (1) 30*d*.
in brick plants, emission of gaseous fluoride compounds, criteria for (3) 62*g*.
from brick-plant kilns (3) 62*d*.
Clean Air Technical Guide (1974) for brick and tile industry (3) 63*e*.
control in fuel-fired tanks (3) 58*d*; control in glass industry (9) 199*d*.
dry-type defluorinator for tunnel kilns (7) 177*d*.
during smelting of enamels (7) 154*d*.
in fuel-fired tanks (1) 10*g*.
Pb in airborne particles, determination by proton activation analysis (9) 223*e*.
* SO_2, abatement (3) 93*c*.
control, in asbestos, cement, glass, and allied mineral industries, B (3) 95*b*.
mine residues, handling by English China Clays Group (1) 48*d*.
monitoring, with programable calculator (9) 223*j*.
noise, in cement and lime industry (7) 152*e*.
control in plant (5) 130*d*.
demolition and construction (5) 129*h*.
samples, X-ray fluorescence analysis, particle size and composition effects (7) 176*i*.
smoke, density monitoring (9) 223*e*.
water, in enameling industry (5) 102*i*.
Polycrystalline materials, Hall effect in (1) 39*h*.
Polymerization, effect, in hydration of cements (3) 53*e*.
Polymers, ionic, B (3) 94*j*.
Porcelain, bodies, mechanical properties (7) 169*c*.
clays for, white-firing carbonate-containing Troshkovsk (1) 23*i*.
commercially fired, development of body structure in (1) 23*b*.
compositions, containing polymer, P (1) 24*f*.
Porcelain *(continued)*
defects in, detection with optical emission spectrography (3) 71*d*.
electrical, develoment (7) 168*i*.
substituting Kachitsa plastic clays in, by Bukovlur or Klisuritsa clay (9) 215*j*.
electrotechnical, from clays of Nizhne-Uvel'skii deposit (3) 72*a*.
mechanical properties, effect of glaze (7) 168*j*.
feldspathic, electrotechnical, calculating phase composition (9) 214*d*.
firing, with introduction of atomized water into natural gas flame (1) 23*g*.
in tunnel kiln, automated monitoring (1) 33*e*.
glaze-, system, intermediate layer in, study by electron probe (5) 123*e*.
and glazed earthenware, production technology, B (7) 192*c*.
glazes on, improving quality (3) 71*e*.
Gusev stone in, structural characteristics (3) 71*e*.
hard, and Al_2O_3, diamond tools in mfg. (9) 193*c*.
mullite in (3) 71*i*.
in symposium on pottery bodies (7) 170*a*.
high-tension, strength, effect of glaze (7) 169*a*.
high-voltage, brown glost-fire glaze for (1) 22*f*.
properties, effect of Al_2O_3 particle size (1) 23*c*.
semiconducting glazes and coatings for (1) 23*f*.
household, volcanic tuff in (3) 72*c*.
mullite in, physical properties (3) 71*j*.
and pottery, connoisseur illustrated guide, B (3) 93*j*.
problems, and solutions (3) 71*i*.
properties, controlling (9) 214*i*.
solid, Gusev stone of normal alkalinity in (9) 216*g*.
strength, during use (3) 71*d*.
technical, drying (5) 123*e*.
whiteness, relation to translucence (1) 23*d*.
Pores, adsorbing, and transporting, diffusion coeff. (3) 86*a*.
of cement paste (3) 51*a*.
effect, on refractories wear (3) 65*c*.
growth, in ThO_2 (5) 144*b*.
open, and closed, differentiating on microscopic scale (3) 81*d*.
shape, effect on stress-strain distribution in cement paste (3) 51*c*.
size, measurements (1) 32*j*.
spherical, radiation heat transfer across, effect of matrix conductivity (3) 86*d*.
structure, of C fibers (9) 210*h*.
of Ca silicate hydrates (5) 101*b*.
in cement stone and polymer concrete, electron microscopy (5) 99*j*.
of Na borosilicate glasses (7) 159*e*.
prediction of "tortuosity factors" from (1) 33*b*.
of slag-cement pastes, relation to surface area (9) 195*e*.
Porosimetry, Hg, comparison of pore size as determined by (9) 222*a*.
Porosity, of aluminosilicate coatings, dependence on firing conditions (7) 173*c*.
capillary, of portland cement pastes, effect of curing conditions (3) 51*g*.
of cement, portland paste, effect of curing (7) 151*d*.
of ceramic body, relation to elastic modulus and impact strength (1) 23*e*.
dependence, of elastic properties of polycrystalline cubic Lu_2O_3 (3) 90*g*.
effect, in air-entraining admixtures, on properties of concrete (7) 151*j*.
on electrical and magnetic properties of ceramics (3) 73*d*.
on Poisson's ratio of refractory bricks and MgO-doped samples (9) 208*g*.
on self-cleaning systems (9) 198*h*.
on vacuum vaporization of MgO (1) 38*d*.
on Young's modulus of ZrC and NbC (9) 230*e*.
of ferrite $ZnNi(Co)Fe_2O_4$, scanning microscopy (7) 186*h*.
of graphite electrodes, microscopy measurement (1) 32*g*.
inhomogeneous, effect on elastic properties of ceramics (1) 38*c*.
of refractories, effect of firing temp. (3) 64*j*.
green (9) 208*i*.
-thermal conductivity, correlations for ceramic materials (1) 44*a*.
Porous materials, ceramic, P (1) 31*c*.
ceramic workpieces, machining with diamond tools (1) 1*b*.
frost resistance, critical moisture contents (7) 150*c*.
P (9) 216*d*.
shrinkage, equilibrium, calculation (7) 151*e*.
Positrons, coherent bremsstrahlung by, in Si and Nb crystals (5) 136*a*.
Potassium, carbonate, reaction with Nb_2O_5 (9) 238*e*.
chloride, and bromide, single crystals, electrical conductivity and dielectric properties (9) 231*c*.
crystals, pulsed CO_2 laser irradiation (7) 185*f*.
deexcitation of excited F and F_A(Na) centers in (1) 38*g*.
and KCl+CsCl, thermal properties (1) 47*j*.
-KBr mixed crystals, dislocations and ionic conductivity in (1) 37*b*.
dihydrophosphate, crystals, cracking (9) 228*f*.
ferrocyanide trihydrate, ferroelectric transition in, thermal analysis (3) 75*j*.
iodate, phase transitions, dynamics (1) 37*g*.
ion conduction, in K beta ferrites (3) 90*h*.
ions, interdiffusion in glass, Nernst-Planck equation (9) 199*d*.
$KCoO_2$ (7) 183*h*.

Potassium *(continued)*
KH_2AsO_4, EPR study (9) 236*g*.
KH_2PO_4, lattice planes, neutron diffraction by (1) 38*a*.
$KMnF_3$, structural phase transition temp. in (3) 91*b*.
$KNiF_3$, antiferromagnetic domains in, X-ray topography (3) 90*d*.
(K,Rb;Cl,Br), surface tension (3) 92*b*.
$KSr_2Nb_5O_{15}$, domain effects in (1) 37*e*.
K_2CuF_4, orbital ordering in (9) 236*a*.
K_2SO_4, beta-, orthophosphates and orthovanadates (9) 235*f*.
$K_5(UO_2)_2F_9$, ir absorption spectroscopy and Raman spectra (5) 140*b*.
manganate, and KIO_4, reactions in alkali halide disks (7) 183*i*.
molybdate, double, new modifications (1) 42*d*; double (9) 237*c*.
oxide, effect on crystallization of Li_2O-ZnO-SiO_2 glass (3) 57*d*; effect on Ti powder enamels for cast iron (9) 198*c*.
pentaborate, indices of refraction (5) 140*i*.
salt vapors, reaction with zircon refractories (1) 19*i*.
tetrafluoroborate, melts, interactions with fluorides of K, La, and Nd (9) 201*h*.
titanate, formation, DTA and DTG, kinetics (9) 230*a*.
Potteries, Marsh (7) 149*d*.
Pottery, apprenticing (9) 193*i*.
black, making and firing (7) 149*d*.
bodies, flint vs SiO_2 sand in (7) 169*c*.
by coil, B (7) 189*d*.
craft, B (1) 48*f*.
design, of Mashiko, changes in (3) 70*j*.
in Shigaraki and in Mino (1) 1*h*.
dry-pressing, P (1) 24*c*.
form, B (9) 243*d*.
lamp fitting, for indirect lighting, P (1) 24*d*.
Mocha ware (7) 149*e*.
people pots (7) 149*e*.
planter, thrown by Ed Drahanchuk (9) 193*c*.
polypropylene uses for (1) 23*c*.
and porcelain, connoisseur illustrated guide, B (3) 93*j*.
raku, techniques, B (3) 96*e*.
throwing, basic (9) 193*j*.
extended (7) 149*b*.
one-handed (7) 149*e*.
Powders, by atomizing molten material, P (1) 31*c*.
ceramic, cold-pressing, and relation to sintering behavior (7) 183*h*.
ceramic molding, moisture content, automatic control (9) 214*c*.
compacts, hot-pressing, P (3) 79*g*.
electrostatic properties, apparatus for studying, P (7) 177*a*.
feeding apparatus, P (7) 175*b*.
fine, P (3) 79*g*.
firing, method and apparatus, P (5) 130*d*.
flow behavior (7) 150*f*.
with increased pressed density, P (5) 130*e*.
metal, and ceramic, attrition, P (5) 130*a*.
mixer for, P (5) 130*e*.
pellets from, P (3) 79*g*.
pressed-, bodies, with openings or slots, P (9) 221*j*.
processing, test room, problems of running (7) 174*j*.
shearing stress, measuring apparatus for, P (7) 177*e*.
spherical, sintered, P (1) 24*i*.
Praseodymium, green emitting, in $CaZrO_3$ (5) 140*a*.
Precipitates, extraction, associated with fission gas bubbles in UO_2 (5) 128*e*.
Precipitation, in CdTe, pure and doped (5) 144*d*.
epitactic, of inorganic material, P (5) 127*g*.
high temp., in $(Al_2O_3)_n$MgO spinel, TEM study (7) 188*c*.
in ZrO_2, comments and reply (5) 136*b*.
Precipitators, electrostatic (5) 129*j*.
Presses, for ceramic articles, or refractory, P (3) 79*j*.
clay extrusion, P (1) 31*d*.
extrusion from, forming and drying ceramic material during, P (1) 31*i*.
filter, P (1) 31*g*; P (9) 221*i*.
plate, P (1) 31*h*; plate, P (9) 222*b*.
plates, device for clamping, P (1) 31*e*.
high-pressure, P (7) 175*i*.
hot, P (9) 221*j*; P (9) 222*a*.
hydraulic, for molding tiles and plates, P (3) 79*h*.
isostatic, automatic, P (7) 175*f*.
P (7) 175*b*.
powder compression, P (9) 222*b*.
for powders, or fibrous material, P (3) 79*i*.
tubular filter, P (3) 79*a*; P (5) 130*b*.
Pressing, cold-, ceramic powders, relation to sintering behavior (7) 183*h*.
hot-, $Ba_2Ti_9O_{20}$ (5) 124*i*.
densification kinetics of Mo and W borides in (3) 64*b*.
laboratory apparatus for studying (9) 223*c*.
materials for quantity production, P (1) 31*a*.
metals and alloys, glass lubricant for, P (9) 205*e*.
$MgAl_2O_4$, recrystallization during, comment and reply (3) 85*c*.
MgO (9) 232*j*.
of oriented filaments, densification in (3) 85*h*.
powder compacts, P (3) 79*g*.
Si_3N_4, P (3) 69*h*; Si_3N_4 powder and flux mixture, P (5) 122*b*.
in technology of electronic ceramic materials (3) 73*e*.
of vol variable resistors (3) 73*f*.
ZrO_2 (1) 18*c*.
isostatic, principles and methods (1) 30*h*.
Pressing *(continued)*
powders, ceramic, P (3) 79*j*.
P (3) 70*e*.
wet, of ceramic articles, P (7) 175*d*.
Pressure, between solids, disjoining (7) 150*j*.
effect, on magnetoacoustic resonance in antiferromagnetic substances (5) 138*c*.
high, apparatus for establishing, P (7) 175*e*.
device, P (1) 31*j*.
effect on cement hydration and hardening (5) 99*h*.
vapor, in CdS-CdSe system (5) 147*b*.
Prosthetic ceramics, artificial joint, using Al_2O_3 material, P (5) 124*f*.
bone, bone connection, or anchoring materials, P (1) 24*d*.
P (1) 24*c*.
joint, P (1) 24*g*.
orthopedic, dental, and cardiovascular, B (1) 48*b*.
Proustite, single crystals, electrical conductivity (9) 233*d*.
Pumice, scoriaceous, Soviet standard for (9) 223*h*.
Pumps, centrifugal (3) 78*j*.
rotary, low-cost, metering with (9) 223*g*.
Purification, of NaOH, P (3) 83*g*.
of WC, P (1) 35*a*.
Pyrargyrite, single crystals, electrical conductivity (9) 233*d*.
Pyroelectricity, properties, of ferroelectric ceramics (3) 73*j*.
response, in transparent ferroelectric glass-ceramics (1) 27*c*.
Pyrophyllite, dielectric properties, as function of water vapor pressure (9) 229*g*.
in Nevada (5) 134*f*.
Pyrrhotite, hexagonal, high-temp., ordering of vacancies in (1) 36*j*.

Quarrying, limestone, pumpable slurry explosive in (3) 51*d*.
Quartz, alpha-, in atmospheric dust, ir spectrometry and X-ray diffraction techniques (3) 79*i*.
dielectric constants (9) 234*j*.
beta⇌alpha transition (9) 235*a*.
in ceramic bodies, review and discussion (3) 72*c*.
colored, by radiation, color sorting, P (7) 177*a*.
crystalline, harmonics and attenuation of Rayleigh waves on (9) 235*j*.
crystals, growing, and seed plate for, P (3) 76*c*.
-C_3S mixtures, autoclave hydration, effect of precuring (3) 52*b*.
dielectric constants (7) 180*g*.
domain structure, and diffuse electron scattering in, electron microscopy (9) 231*h*.
evaporation, formation of condensate of stoichiometric composition during (9) 232*e*.
formation, under hydrothermal conditions (1) 42*c*.
fused, elongated members, P (9) 205*c*.
high-temp. Brillouin scattering in (9) 232*i*.
fusion, in H-O flame (1) 8*a*.
for glass, deposits, mining, preparation, and properties (9) 202*g*.
ground, electron-microscopic study (1) 38*a*.
mechanical activation, in laboratory mills (5) 130*c*.
mechanochemical reactions, kinetics (5) 141*e*.
optical constants (7) 158*h*.
properties, effect of industrial parameters (9) 209*f*.
sands, analysis (3) 82*d*.
beneficiation, for crystals (3) 82*d*.
for glass (9) 202*h*.
spectrographic method to determine Fe, Al, Ti, Ca, and Mg in (1) 11*i*.
single crystal, thermal expansion (9) 241*f*.
in SiO_2 bricks, determination by X-ray diffractometry (3) 80*c*.
smoky, reinterpretation (5) 144*j*.
soil, O isotopic variation, SEM of cherts in relation to (7) 186*g*.
-steel, friction and wear between, effect of environment (7) 149*a*.
surface pits on, origin, SEM (1) 43*a*.
synthetic, and fused, moisture expansion (1) 9*j*.
thermoluminescence, effect of grinding (5) 137*g*.
transformation, kinetics (3) 89*i*.
Quartzite, from Kareli deposit (5) 134*i*.
Quenching, effect, on electrical activation of As implanted in Si (1) 40*i*.

Radiation, centers, of paramagnetic and optical absorption in glasses (5) 109*d*.
damage, in MgO, suppression (5) 139*i*.
electronic, damage in Si solar cells (1) 25*f*.
ir-, effect on glass transition temp. of polyethylene (3) 56*i*.
synchrotron (9) 223*g*.
thermal, properties, of antireflection glass (1) 12*d*.
X, suppression during sputter etching, P (5) 128*g*.
Radiography, of slags, and slag-barite hardening mixtures (9) 196*g*.
X-, and gamma-, nomograph for (5) 131*g*.
Radiometry, analysis, of Ca and Fe content of cement raw meal, apparatus for (3) 50*e*; of Ca and Fe content in raw slurry for cement (3) 50*j*.
Raman effect, of Fe_2O_3-PbO-SiO_2 system (9) 229*e*.
Rare earths, adsorption, on clay minerals (5) 144*b*.
germanates, synthesis and electrical properties (3) 92*d*.
hexaborides, free B in (3) 79*j*.
LnMX$_3$, (M = Ta,Nb,Ti,V; and X = S,Se) preparation and properties (7) 185*f*.
metals, hexaborides, electron fractography (5) 138*h*.
oxyfluorides, polymorphism (9) 237*i*.
Rare earths metals *(continued)*
recovery from H_3PO_4 by-product brine raffinate, P (5) 135*b*.
tetraborides, electrical and thermal conductivities (1) 38*i*.
Mn silicides, P (9) 220*a*.
molybdates, double, new modifications (1) 42*d*.
orthovanadates, magnetic and electric fields, measurements (9) 235*b*.
oxides, in glasses, determination by complexometric method (1) 10*e*.
R_2O_3.WO_3, polymorphism at high temp. (7) 185*c*.
sesquioxides, solidification temp., effect of atm (1) 45*e*.
tungstate, double (9) 230*a*.
Reactors, chemical vapor deposition, P (3) 76*d*.
core, gripping apparatus of lifting device in, P (7) 174*i*.
fast, heat-insulating lining for, P (7) 174*j*.
fast-neutron, P (3) 78*f*.
gas-cooled, high-temp., tritium balance in (9) 200*g*.
high-temp., fuel bodies, fuel elements, and absorber elements for, P (3) 78*f*.
jet assembly, P (7) 174*e*.
nuclear, attachment and locking finger control rods in, P (5) 129*c*.
boiling-water, increasing burnup capability, P (3) 78*g*.
for breeding to ^{233}U, P (9) 221*d*.
composite graphite-pyrocarbon-SiC refractory for, P (1) 30*d*.
control rod drive for shutdown, P (5) 129*c*; control rod for, P (7) 174*g*; control member for, P (9) 221*a*.
cooling apparatus for, emergency, P (1) 30*f*.
core for, P (3) 78*e*.
core, device for handling fuel assemblies in, P (3) 78*e*.
core, diagrid for supporting, P (5) 129*d*.
device for refueling, P (1) 30*e*.
elliptic equations with partial derivatives for (5) 129*a*.
emergency heat removal system for, P (5) 129*e*.
failed fuel detection, P (7) 174*h*.
fluid shutdown system for, P (1) 30*f*.
fuel rods, detecting defects, P (7) 174*g*.
gas-cooled, fuel assembly for, P (5) 129*e*.
hydraulic balancing of control component in, P (3) 78*f*.
internal construction and failed fuel rod detection, P (7) 174*d*.
localizing fuel can failures in, P (9) 221*c*.
P (3) 78*i*.
pipe penetration structure for, P (1) 30*j*.
protective system, P (5) 129*a*.
removing radioactive gases from, P (3) 78*h*.
thermionic, P (3) 78*i*.
period meter for, P (5) 129*a*.
PWR, failed fuel detection for, P (5) 129*e*.
rotating plasma, synthesis of Mo-C silicides in (5) 120*h*.
Th high-temp., ceramic reactor installations for (9) 220*b*.
Reflection, optical, of crystals and glasses of compounds Ag-B^VS_2 (5) 108*e*.
patterns, Kikuchi, of single crystals of MgO, Al, Si (9) 234*a*.
of $Pb_{1-x}Sn_xTe$, temp. dependence (3) 92*h*.
sufficient, and necessary, obtaining according to space group (1) 44*b*.
of Ti_2O_3 (7) 186*a*.
Reflectors, solar, low-cost, of foamed glass (9) 201*h*.
Refraction, birefringence, of $GdMoO_4$ (9) 241*f*.
of light, on excitation of nonlinear ferromagnetic resonance in Fe-Y garnets (9) 227*c*.
double, of $ZnSiP_2$ (9) 238*d*.
Refractive index, aggregate, of synthetic serpentine in system MgO-Al_2O_3-SiO_2-H_2O (3) 84*d*.
behavior, of SiO_2-B_2O_3 glass system (7) 154*h*.
of CdTe, (Irtran 6) (5) 144*h*.
of GaAs, n-type (7) 186*a*.
of glass, borosilicate (3) 59*e*; borosilicate, relation to structure (9) 199*i*.
system Y_2O_3-SiO_2-Al_2O_3 (5) 110*a*.
of glass beads, high refractive index (1) 11*c*.
of K pentaborate (5) 140*i*.
of $LiYF_4$, measurement (3) 89*d*.
measuring, and change with temp. in ir (5) 132*f*.
profile, in diffused graded index lenses (5) 109*j*.
variable, by sputtering Ta in O_2-N_2 mixtures (3) 59*j*.
of $ZnSiP_2$ (9) 238*d*.
Refractories, abrasion-resistant, composition, P (7) 166*i*.
alumina, brick, P (7) 166*j*.
fused cast shapes, interaction with iron scale (3) 65*j*.
high, fracture mechanism in crown of arc furnace (9) 209*d*.
high-, creep, effect of gaseous medium (1) 17*b*; high-, Yun Chun andalusite for (1) 20*e*; high-, and MgO, spalling failures (3) 68*c*; high-, runner brick, for bottom pouring (5) 117*i*; high-, performance in steelmaking (7) 165*g*; high-, Yun Chun andalusite as raw material (7) 166*f*; high-, P (9) 213*e*.
P (7) 167*a*.
spalling behavior with sudden heating and cooling (7) 164*g*.
-base bodies, porous, P (1) 21*i*.
aluminosilicate, C reduction (1) 16*j*.
and Dinas, for blast furnaces, thermal expansion (5) 121*d*.
hot strength (9) 210*a*.
wetting by steels (5) 117*a*.
Zr-containing synthetic corundum in charge of (1) 20*g*.
articles, fully dense, and process using MgO as sintering aid, P (9) 213*d*.
P (5) 122*f*; P (9) 214*e*.
sintered permeable, P (7) 168*g*.

Refractories *(continued)*
auxiliary, with cordierite binder (5) 115*j*.
baddeleyite-corundum, granulation (3) 65*h*.
baddeleyite-corundum castings, cracks in, effect of refractory composition (5) 117*b*.
bakor, high-ZrO_2, firing (1) 17*f*.
basalt-based, in Poland (1) 19*a*.
basic, bonded fused grain, and batch for, P (5) 121*b*; bonded shapes, size-graded ternary batch for, P (7) 168*h*.
burned, and batch for, P (9) 212*d*.
fused-cast, properties for Ar-O decarburization method (7) 165*b*.
new, for steel furnaces (9) 210*e*.
raw materials for (1) 19*f*.
rotary slag testing (9) 211*f*.
shapes, P (9) 212*c*.
slagging, effect of alloying elements (9) 210*f*.
basic brick, cold-bound C-containing, P (5) 121*f*.
C-containing, P (1) 21*a*.
high-temp. properties (5) 117*i*.
in ladle refining system (5) 115*e*.
bearings, P (9) 212*f*.
binder, and concrete, P (1) 22*a*.
new (3) 66*a*.
blocks, blast-furnace, thermal conductivity, apparatus for determining (9) 222*f*.
burner, for glass furnaces (3) 64*a*.
channel, with epoxy resins in construction (3) 64*j*.
constructional, P (9) 212*j*.
corundum-baddeleyite, in glass tanks, corrosion mechanism (1) 16*e*.
for electric arc furnace, P (9) 213*b*.
for hot pig iron runners (3) 64*i*.
for lining firing and melting chambers, P (9) 214*e*.
P (5) 122*g*.
perforated, packaging techniques (9) 210*f*.
BN, P (7) 167*d*.
board, fire-resistant inorganic, P (3) 70*g*.
boats, white furnace, for firing ceramic articles, P (9) 214*a*.
body, composite laminate, P (9) 212*i*.
electrically conductive, P (5) 121*g*.
fired, physical and mechanical properties, improved by PMMA impregnation (7) 165*h*.
fused-cast, P (1) 21*b*.
loading on kiln cars, mechanization (9) 210c.
P (1) 22*a*.
shaped, and coatings, P (1) 21*f*.
systematics for development (9) 212*d*.
BOF, at Kimitsu Works (7) 164*j*.
pitch-bonded, hot modulus of rupture (7) 165*g*.
at Republic Steel and U.S.A. (7) 164*b*.
bonding system, P (3) 70*f*.
bore core, for cast-iron castings, P (3) 70*f*.
bottom, blast-furnace hearth, of new type brick (9) 208*c*.
sand, of metallurgical vessels, P (9) 213*j*.
brake materials, automotive (9) 208*g*.
brick, acid-resistant, lining (3) 66*f*.
corrosion in BOF (5) 116*j*.
for fiber glass melting furnace (9) 211*j*.
furnace shaft entry, P (3) 69*c*.
fused oxide, P (7) 167*a*.
for glass-tank furnaces (1) 19*h*.
ladle lining, P (3) 70*h*.
lightweight, for insulating inner linings of rotary kilns (7) 152*a*.
metal oxide coated, P (7) 167*e*.
and MgOsamples, Poisson's ratio as function of porosity (9) 208*g*.
and mortar, P; structure, P; brick, P (5) 122*g*.
P (1) 22*a*.
protection against corrosion, P (9) 214*d*.
for roofs of electric arc steel furnaces (5) 120*f*.
rotary kiln, testing service properties of adhesives for (5) 102*e*.
runner, for bottom pouring (5) 118*f*.
storage heater, P (7) 168*j*.
brickwork, property measurements (7) 165*j*.
building, for high temp. (5) 118*a*.
burner throat, combustion chamber, for boilers, P (7) 168*b*.
cabinet, particle-showering, P (1) 21*h*.
Canadian, for burning zones of rotary kilns in cement plants (7) 164*e*.
carbon bond, for hot pig iron runners, construction by sandwich method (3) 64*g*.
cast, heat treatment to improve corrosion resistance, P (3) 69*e*.
castable, cement-free (3) 64*b*.
explosive cracks in (3) 65*e*.
gunning lightweight, cause change in properties (3) 64*d*.
heating (3) 65*b*.
of lightweight refractory aggregate "foamed SiO_2" (3) 64*b*.
for casting, continuous, at Oita Works (7) 165*g*.
stopperless, of steel (1) 19*c*.
casting apparatus, continuous, for steel, P (1) 21*h*.
casting cores, investment, P (1) 21*f*.
casting pit, corrosion by molten steel and slag (5) 116*b*.
castings, containing thermoplastic binders, strength (1) 20*e*.
rock, inelastic deformation (1) 18*d*.
cellular product, P (7) 168*b*.
ceramic fiber, in difficult environments (3) 64*c*.
as energy saver in iron and steel industry (3) 64*c*.
ceramic mass, P (3) 70*f*.
ceramics, plaster molds for (5) 101*a*.

Refractories *(continued)*
ceramic-vermiculite bodies (9) 211*h*.
chimney, brickwork, with integral flue gas channels, P (5) 121*e*.
chrome-magnesite, direct bonding in, effect of Fe oxide (9) 209*g*.
sintered, P (1) 21*e*.
chrome-magnesite brick, in electric arc furnace for melting ferrovanadium (1) 19*i*.
P (1) 21*e*.
chromite, Brazilian, properties and evaluation (3) 82*f*.
and sintered magnesite, tube mills for mixing (3) 78*e*.
chromite-periclase, in roof of open-hearth furnace, mineral formation and wear (9) 210*d*.
coatings, P (9) 214*b*.
composite, heat-resistant material, P (7) 167*b*.
compositions, cold hardening, P (9) 212*i*.
cold-setting, P (3) 69*h*.
hydraulically setting, P (9) 213*g*.
of low shrinkage during sintering, P (9) 212*f*.
P (7) 168c; P (9) 212*i*; P (9) 214*e*.
shaped heat-insulating, P (7) 168*e*.
compounds, activated sintering (3) 84*a*.
deformation and recrystallization (3) 85*g*.
thermionic emission properties (1) 47*b*.
containers, for molten metals, P (7) 167*g*.
converter, dolomites of Dankov deposit as raw materials for (1) 16*j*.
at Kokura Steel Works (5) 117*f*.
O, effect of physical properties on life (1) 17*e*.
testing (3) 63*g*.
cordierite (9) 208*c*. P (9) 213*a*.
preparation using hydrated Mg silicate and Al silicate (9) 210*i*.
corrosion, by molten glass, tests (9) 208*e*.
corundum, and aluminosilicate, wetting by C steel (3) 64*i*.
in cupola mixer, metal stability and wear (3) 66*g*.
deformation properties, effect of molding pressure (9) 209*i*.
electrically melted, reaction with orthophosphoric acid (3) 67*a*.
mullite fraction in, electron microscopy (1) 17*a*.
with phosphate binder (1) 18*i*.
polished, strength, effect of surface defects (3) 64*j*.
solid, with high heat resistance (3) 67*f*.
for stopperless closing devices (5) 119*h*.
from technical-grade Al_2O_3 (1) 16*f*.
thick heat-resistant, for induction furnaces (1) 18*j*.
tips used in detection of O in steel (1) 19*b*.
Cr-containing, in slag zone of induction furnace of Kivtset plant (1) 19*h*.
creep, in various furnace atm (5) 116*c*.
crucible, laboratory, from pure CaO (9) 210*a*.
pyrolytic graphite, action of metallic melts on (1) 16*f*.
quartz-porcelain (9) 211*d*.
resistance to Ba melt (5) 120*b*.
of TiB_2 and AlN, hydrostatic pressure-forging (9) 210*b*.
Cr_2O_3-based, reinforced with mullite crystals (1) 16*g*.
dense, for fiber glass melting furnace (9) 211*i*.
Dinas brick, in air heaters of blast furnaces (1) 18*f*.
in burners of glass tank furnaces, mineralogical zoning in (5) 118*j*.
controlling quality in glass industry (3) 64*j*.
fired, quality evaluation (1) 17*b*.
for large high-production coke ovens (1) 18*e*; large, firing in tunnel-type kilns (3) 65*f*; large lightweight products, for blast furnaces (9) 211*c*.
properties and firing, effect of mineralizing additives (5) 116*j*.
sintering, effect of mineralizing additive of portland cement (9) 194*d*.
thermal stability (1) 20*i*.
dolomite bricks, for linings (7) 164*d*.
dolomite-magnesia brick, for lining charging side of converter (5) 118*e*.
dolomite-magnesite, and batch for, P (1) 21*i*.
brick, high-temp. burned, in hot spot (7) 165*f*.
dressings, P (9) 214*e*.
electrically conducting, P (9) 213*b*.
permeable sintered, P (7) 167*h*.
electric arc furnace, slagging test for (5) 120*j*.
in electronic industry (9) 216*h*.
element, fired shaped, P (1) 22*b*.
erosion, high-temp. (5) 120*j*.
facing, for hot spot protection in UHP electric arc furnaces (9) 210*a*.
wear-resistant, P (1) 21*a*.
fiber insulating, higher temp. (7) 164*a*.
fibers, from natural raw materials (5) 119*i*.
filters, for foundry production (3) 67*h*.
fireclay, beneficiation (3) 82*e*.
dense products, creep in (7) 164*a*.
Donskoe deposit (5) 133*i*.
interaction with orthophosphoric acid (3) 89*g*.
reheat expansion (3) 68*d*.
separation of kaolinite and illite in (7) 178*j*.
fireclay brick, standard and special shaped, automated and mechanized mfg. (1) 16*g*.
fireproof materials, melted electrically with Zr in building glass furnaces (7) 165*f*.
foam, impregnated, porous ceramics from, P (7) 167*j*.
foam material, closed-pore, lightweight (7) 164*b*.
foams, rigid silicate, P (1) 22*e*.

Refractories *(continued)*
forming, flame spraying apparatus for, P (1) 21*a*.
forsterite, from talc-magnesite of Pravdinsk deposit (1) 17*h*.
fracture energy (9) 209*i*.
friction clutch, wear-resistant component, P (5) 122*d*.
furnace, protective oxide layer for, P (3) 70*e*.
furnace charge, effect of surface-active agents (1) 17*f*.
gas-permeable (3) 65*g*.
gas reactors, including foam-structured ceramic body, P (1) 21*b*.
gate pipe, device for gripping, P (7) 167*h*.
glasshouse, heat conservation with (3) 57*a*.
in glass industry (1) 19*j*.
in glassmelting, high-temp. (1) 19*j*.
graphite-grog, firing in reducing medium without coke charging (9) 209*c*.
gratings, in kiln cars (9) 209*b*.
green, porosity and density (9) 208*i*.
rigidly bonded, P (9) 214*f*.
grog, after use in glass tank furnaces, petrography (9) 210*h*.
kyanite-sillimanite, properties and phase composition (1) 19*b*.
reinforced with ceramic filaments, thermal stability (1) 20*h*.
grog-talc, containing phosphate binder (5) 117*h*.
grout, -cement mixture (9) 211*b*.
gunite compositions, for boiler furnace screens (3) 64*f*.
effect on bond strength of magnesite-chromite coatings on masonry (1) 17*a*.
magnesite-chromite, phase separation and fluidity (1) 18*c*.
guniting compounds, strength, effect of MgO raw material (9) 209*e*.
gunning, hot ladle (9) 209*j*.
improvement (3) 66*i*.
materials, serviceablility (3) 68*i*; materials for ladle (7) 165*c*; materials in electric furnace (7) 165*d*.
mixtures, applied with lab pneumatic spray gun (3) 50*i*.
mobile apparatus, P (3) 70*a*.
hardening composition, inorganic, P (7) 167*d*.
hearth, rolling-mill, with nonbasic materials (7) 165*c*.
in 30-ton electric furnace, by vibration method (7) 165*e*.
hearth blocks, with phosphate binder (1) 18*f*.
heat insulating strips, P (3) 70*h*.
heat shields, reflecting, of microstructured fused SiO_2 (3) 67*e*.
heat-shock-resistant, P (1) 21*e*.
HfO_2, preparation and properties (3) 66*i*.
Hg in, capillary motion (9) 208*c*.
high-, materials, stability in Cr melt (9) 211*i*.
high-efficiency, new (5) 121*i*.
high-melting, composition, P (7) 167*b*.
honeycomb, ceramic structures, P (3) 79*c*.
P (1) 31*d*.
structures, P (9) 213*g*.
thin-walled carbonaceous structures, P (3) 70*d*; thin-walled structures, extruding, P (3) 79*f*.
hot tops, brick, hook for, P (3) 69*h*.
lining slabs and sleeves, P (9) 213*g*.
slabs and sleeves, P (1) 21*e*.
industrial, enthalpy and heat capacity (9) 209*b*.
ingot soaking pits, channels from polycrystalline SiC in (3) 64*d*.
inorganic foam element, P (1) 21*f*.
insulating, semirigid, P (1) 22*f*.
insulating compositions, P (1) 22*c*.
sprayable, P (1) 22*c*.
insulation, of high-temp. furnaces, P (9) 213*h*.
insulation material, P (7) 168*c*.
insulation tiles, attaching (3) 66*h*.
from kaolin wool (3) 67*e*.
kaolin, dense, for lining of blast furnace (3) 64*a*.
kyanite-sillimanite, lightweight aerated (1) 17*c*.
ladle, bottom, prolonging life (5) 118*c*.
brick, Berlin clay for (1) 17*d*.
brick, grog-free, from raw kaolin (1) 17*i*.
brick, unfired, properties (5) 119*e*.
brick, for vacuum degassing (5) 118*e*.
brick, at Wakayama steel mill (5) 118*g*.
brick, unburned (5) 121*e*.
and ladle control systems in steelmaking (7) 165*j*; and ladle control systems in steelmaking processes (9) 211*j*.
lined by sand slinger method (7) 165*i*; lined by slinger process (7) 165*j*.
metallurgical, P (3) 70*a*.
sand-lined, effect of water spray (9) 209*a*.
slide gates, at BSC's South Teeside Works (9) 210*b*.
steel teeming, stable heads for (1) 20*d*.
torpedo-, slag attack on (7) 166*h*.
unfired C-containing semiacid (1) 20*a*.
in ladle refining furnace (5) 119*j*.
lance, molten metal sampling, P (1) 21*h*.
lightweight, foamed, from Arkalyk deposit (3) 66*c*.
lignin material, foamed porous, P (3) 69*b*.
lime (5) 117*g*. fused (5) 118*j*.
liner, for feeder heads used in metal casting, P (1) 21*g*.
lining, anchor for, P (9) 212*c*.
AOD, in production of type 409 stainless steel, improving wear (3) 66*b*.
apparatus for, P (9) 212*c*.
application to hot metallurgical ladles, P (7) 167*b*.
applying to pits, converters, ladles and vessels, P (1) 20*j*.
basic, increasing life in hearth-type furnaces, P (7) 167*c*.
binder for, Al-Cr phosphate (3) 63*h*.

Refractories lining *(continued)*
of blast furnace stacks, P (9) 213*i*.
blast furnace bottom, P (3) 69*b*.
blast furnace, C brick or block in (5) 116*d*.
blast furnace, wear status using radioactive sources (1) 16*h*.
bottom, of melting furnaces (3) 66*a*.
carbonaceous material, for blast furnace trough and runner (9) 208*i*.
of channel of high-freq induction furnaces, carborundum-graphite molds for (5) 116*a*.
for channels and containers for molten metal, P (9) 213*a*.
combustion, P (5) 121*d*.
for combustion chamber, and means for support, P (3) 69*e*.
of container for molten metal, forming by vibration, P (7) 167*f*; for container for molten metal, by vibration, P (9) 213*a*.
in containers for molten metal, protecting, P (9) 214*c*.
converter ladle, life at Kakogawa steel mill (5) 119*e*.
and cover, for vessel, P (9) 214*j*.
for crown of closed ferroalloy furnaces (1) 19*e*.
of dead mixer (5) 117*a*.
dolomite, in tuyere-O steelmaking processes (5) 119*g*.
dolomitic, for arc furnace covers, lab and field tests (9) 210*j*.
drying, P (7) 167*e*.
effect of Ar-O process at Armco Baltimore (1) 17*b*.
for elbows of planetary coolers with bricks and castables (5) 101*c*.
in electric arc steel furnaces, wear resistance (5) 118*c*.
in electric furnace, effect of voltage (5) 117*e*.
ferrous melt slag (1) 17*g*.
flexible, furnace, P; flue, connector unit, P (3) 69*a*.
of furnace sintering zone, P (3) 70*h*.
guniting, of hot port zones of rotary kilns (3) 65*j*.
guniting, of steel-casting ladles (3) 65*a*.
gunned, of mixer cars (3) 65*e*.
for handling molten iron (3) 64*e*.
in heat zone of cement refractory kiln (3) 67*b*.
high-Al_2O_3, for hot-metal mixer (9) 209*h*.
high-temp. radiating, P (3) 69*g*.
hot-top, fixing, P (1) 21*j*.
hot-top slabs, adhering, P (5) 121*a*.
induction melting furnace, P (5) 122*b*.
inflatable ingot mold, P (3) 69*i*.
installation in large-size rotary kilns (7) 151*i*.
ladle, slinger method for (7) 166*i*; ladle, monolithic, P (7) 167*f*; ladle, increasing durability by impregnation with C-containing materials (9) 210*e*.
ladle, P (3) 69*i*.
ladle base, degassing, P (3) 69*i*.
of ladle by slinger process (5) 117*i*.
ladle, torpedo (3) 64*a*.
materials, and forms of masonry for kilns above 1750°C (7) 164*j*.
metallurgical reactor, repair, P (3) 70*j*; for metallurgical vessels, P (9) 213*h*.
and MgO cements (9) 208*j*.
mold for applying to metallurgical vessel inner wall, P (1) 21*g*.
molten metal vessels and spouts, P (9) 213*h*.
monolithic, in tapping ladles in steel plant (5) 117*h*.
of outlet zones of rotary cement kilns (5) 101*b*.
P (3) 70*g*; P (9) 214*f*.
for pig iron troughs, P (1) 22*c*.
quartz rammed, reaction with steel component (3) 67*b*.
quartzite, of crucible electric furnaces, stability (3) 65*b*.
rammed, of steel-pouring ladles (5) 119*i*.
rapid dry-out and heat up method for (3) 67*j*.
for rotary kilns (3) 66*j*.
shaft furnace bottom, P (7) 168*e*.
with Si oxynitride binder, in electrolyzing baths (5) 115*g*.
slag, in blast-furnace stack (9) 209*d*.
for spherical bottoms of steel-pouring ladles (9) 208*c*.
in steel converters, from periclase-spinel clinker (1) 17*e*.
steel furnace, fettling apparatus for, P (5) 121*h*.
of steel pouring ladles (1) 18*a*.
of steel-pouring ladles, rammed quartz-clay bodies for (9) 211*e*.
of steel-pouring ladles, quartzite-based materials for (5) 119*h*.
of steel-pouring ladles, siliceous rocks for (5) 120*h*.
temp., device for measuring, P (5) 132*b*.
of Triton Kaowool ceramic fiber (1) 17*i*.
trough, and taphole mixes, for blast furnaces (7) 166*j*.
of tundish for continuous casting (3) 66*i*.
of water-cooled nozzles of open-hearth furnaces, changes in aluminosilicate concrete in (9) 208*h*.
wear, in Hirohata No. 1 blast furnace (7) 166*g*.
-liquid metals, compatibilities and angles of wetting (1) 35*h*.
magnesia, heating in tunnel kilns (3) 65*i*.
plates, wear during nonbottom-pour casting of steel (5) 121*j*.
magnesia brick, in converter lining, properties (5) 119*d*.
dead-burned batch, P (5) 121*g*.
and doloma, for steelmaking processes (3) 67*f*.
high conductivity, thermal conductivity measurement (3) 68*f*.
magnesia-chrome brick, and high-Al_2O_3 ramming mix to extend life of electric furnace (7) 165*a*.
P (9) 213*j*.
service results (5) 116*b*.

Refractories *(continued)*
magnesia-chromite brick, high-fired, from roof of tunnel kiln, material transport by sublimation in (5) 118*a*.
magnesia-zirconia, for taphole of converter (5) 118*g*.
magnesiochromite, high-temp. strength, effect of atm (3) 64*h*.
magnesite, CVD C infiltration (9) 208*f*.
and dolomite blocks, tar and pitches for bonding (7) 166*e*.
fired, for O steelmaking vessels (5) 119*f*.
firing using O in rotary kiln (1) 17*f*.
fracture surface energies (9) 209*f*.
high-hot-strength, P (3) 69*e*.
movement pattern in rotary kilns (1) 18*i*.
service testing (9) 211*b*.
strength, effect of C, testing temp., and furnace atm (9) 209*d*.
magnesite brick, burned, C impregnation, P (9) 212*e*.
magnesite-chrome, direct bonded 60%, improved (1) 16*i*.
magnesite-chromite, and periclase-spinel, reaction with melts from Cu smelter production (3) 67*b*.
magnesite-graphite, granular bodies (1) 19*a*.
magnesite liners, and MgO concretes (3) 64*e*.
magnesite sleeves, for continuous casting of steel (1) 20*j*.
magnesite-spinel, crown, from molten spinel (3) 67*c*.
from molten materials using wastes from chemical industry (1) 18*d*.
magnetite, -coated articles, P (3) 69*j*.
masses, for repairing or strengthening furnace linings, P (1) 22*c*.
materials, aluminous, P; aluminous, P (3) 70*i*.
in ceramic industry (5) 119*j*.
in coal gasification reactors (3) 68*a*.
cold-pressed, P (3) 69*h*.
corrosion by molten glasses, bibliography (1) 5*f*.
dry-soldering, P (3) 69*i*.
film, with bidirectional reinforcing properties, P (1) 28*b*; film, P (7) 167*i*.
firing shrinkage, thermal conductivity, and max. use temp. (7) 165*a*.
forming crystalline tubing from, P (5) 122*d*.
handbook of materials science, B (7) 190*g*.
in ladle torpedo and raw iron mixers (3) 67*i*.
literature survey (9) 208*g*.
nondestructive analysis by neutron activation (1) 18*j*.
P (1) 21*d*; P (3) 69*d*; P (5) 122*h*; P (9) 213*e*.
quality control in acceptance testing (5) 119*f*.
of refractory products, P (9) 213*i*.
sintering, using O in furnaces for (1) 17*j*.
in small Al melters (3) 67*j*.
stability under industrial vacuum conditions (9) 211*j*.
mechanical strength, at high temp. (3) 66*g*.
melt-mullite boundary, charge of interfacial energy at, with surface-active agents (1) 16*b*.
members, protection, P (3) 70*e*.
metal-containing, P (5) 122*c*.
metal-impregnated, P (1) 21*g*.
for metallurgy, and glassmaking (1) 18*j*.
metals, carbides and borides, reactions with LaB_6 (3) 67*d*.
nitrides, oxides, and oxynitrides, P (3) 70*b*.
reactions with metal-like compounds (3) 67*e*.
MgO, and Cr_2O_3 products, P (9) 214*a*.
and doloma, in new steelmaking processes (1) 19*a*.
formation processes for highly ferruginous subzones in (1) 20*a*.
forming mixtures, Zn lignosulfonate stabilizing binder solution for, P (3) 70*f*.
interaction with Al (9) 210*i*.
P (3) 70*h*.
role of C in (9) 211*d*.
MgO-spinellide, in melting chamber of cyclone-electrothermal apparatus (9) 211*h*.
for mineral wool furnaces (5) 117*c*.
mixes, gunnable tarred, P (3) 69*d*.
P (3) 70*i*.
moldable, for burners of rotary cement kilns (5) 118*a*.
molded, forming anchorage cavities in, P (5) 121*i*.
products, P (9) 214*f*.
molding, compression, P (5) 121*f*.
molten-metal-resisting, P (3) 70*b*.
monolithic, stresses and deformation in (3) 68*c*.
mullite, corrosion by Na-containing silicate melt (9) 208*d*.
electrically melted, industrial testing (1) 18*c*.
insulation, coatings for (9) 208*j*.
and mullite-corundum, effect of gaseous medium (1) 17*c*.
P; fibrils, P (7) 167*g*.
siliceous lightweight products (9) 211*f*.
sintering (5) 120*d*.
synthesis and sintering, effect of fluorides (9) 209*i*.
mullite-cordierite, chemical and thermal stability, MgO effect (9) 209*h*.
properties, effect of additives (9) 208*j*.
mullite-corundum, reaction with Fe oxides (5) 119*b*.
Na-beta-Al_2O_3, reaction with Na salts (5) 119*d*.
-Na silicate mixtures, hardening, P (5) 122*a*.
nonmetallic specimens, preparation for laboratory analysis (9) 223*j*.
nozzles, bottom pouring, with slide valve, for melt vessel, P (3) 70*a*.
casting ladle, P (5) 121*d*; casting ladle, P (7) 167*e*.
method and apparatus for forming, P (9) 213*a*.
MgO, and headers, service during stopper-free steel teeming (9) 211*g*.
P (1) 22*d*.

Refractories nozzles *(continued)*
rotary pouring, P (3) 70*j*; rotary (5) 118*j*; rotary, structure and service test (5) 120*h*.
sliding gate, P (1) 22*j*; sliding, assembling apparatus for, P (3) 69*b*; sliding gate, in Japan (9) 212*i*.
sliding-gate, for casting ladles, P; sliding-gate, plate, P (3) 70*c*; in sliding-gate valve system (7) 166*d*; sliding-gate, P (7) 168*i*.
three-layer sliding (5) 116*e*.
oceanic materials, suspended, decomposition and analysis (9) 221*a*.
for O steelmaking, in Germany (7) 166*a*.
oxide, aqueous suspensions, coatings from (3) 65*f*.
coatings, P (5) 122*h*.
electrically conductive, P (9) 213*b*.
fine powders (5) 118*e*.
induction melting (5) 117*a*.
material with fine crystal structure, P (5) 122*i*.
point defects in, thermoelectronic emission to study (3) 93*g*.
study with high temp. neutron diffraction apparatus (9) 208*a*.
thermal expansion and thermal stability (1) 20*g*; thermal conductivity and diffusivity, arc-imaging measurement (1) 32*c*.
thermodynamic stability (7) 166*b*.
wetting by metallic and slag melts (1) 20*g*.
P (1) 21*j*; (3) 70*f*; (7) 168*a*.
particles, ultrafine, from refractory material using plasma flows, P (3) 77*c*.
particulate material, P (7) 167*g*.
periclase, attack by dolomitic BOF slag (5) 115*h*.
for casting steel (1) 18*b*.
molten (1) 19*a*.
P (9) 213*g*.
and periclase-spinel, thermal conductivity (3) 68*g*.
using alkyd resins, P (7) 167*h*.
periclase-chromite, from magnesite powders and chromite ores (1) 18*f*.
periclase-spinel, from raw materials of different degrees of purity (3) 66*e*.
periclase-spinellide crown (9) 210*g*.
in periclase-spinel system (1) 19*b*.
perlite-sillimanite-grog, ultralightweight (1) 18*g*.
phosphate binders (7) 165*h*.
phosphate binders in, for steel teeming (9) 212*h*.
pig iron runners, of blast furnaces, problems and solution (3) 67*b*.
pipes, for iron casting at regulatable pressure (3) 68*a*.
piston rings, plasma-coated, P (3) 70*d*.
pitch-bonded, cold molding, P (1) 21*f*.
plastic, for rotary hearth furnace (3) 67*g*.
for soaking pit (3) 64*j*.
plates, for sliding gate nozzles, P (7) 168*d*.
for platform, of annealing furnace, P (7) 167*a*.
porous ceramic, for ir emitters, microstructure (3) 66*j*.
porous structure, P (9) 213*h*.
powder, inhibiting grain growth in, P (5) 122*b*.
pressing and sintering, P (3) 70*e*.
pressure-molded, from chemical industry wastes with and without magnesite (1) 16*g*.
prills, from solid waste materials, P (9) 214*d*.
product, P (5) 122*a*; P (7) 168*d*.
production, commercial value and profit in (9) 222*a*.
properties, relation to corrosion, literature survey (9) 210*b*.
Q-BOP, challenge (3) 64*d*.
quartz-kaolin blend, for molten metal ladle lining, P (1) 22*d*.
rammed masses, for linings of boiler assembly furnaces, SiC in (5) 121*f*.
from ZrO_2 and H_3PO_4 (5) 119*j*.
ramming, C mass (3) 67*j*.
graphitic-siliceous high-stability compound (9) 209*g*.
masses from ZrO_2 using H_3PO_4 (1) 19*e*.
materials, ZrO_2-based, for induction furnaces (1) 20*h*.
mixture, aluminosilicate bodies in Cr-Al phosphate binders (3) 63*g*.
recuperator, soaking pit, improving tube life (9) 210*c*.
from refractory oxides, by gas-flame sputtering (9) 211*a*.
regenerators, coke-oven, P (1) 21*f*.
gas turbine, seal materials (3) 54*a*.
glass furnace (5) 108*i*.
perforated packings for (1) 17*d*.
resin binder-based, thermophysical properties (1) 20*i*.
resonance freq., of refractories, apparatus for determining (9) 222*e*.
roof, basic, for electric furnaces (9) 208*b*.
electric arc furnace, superstructure, P (1) 21*j*; of electric arc steel furnaces (5) 117*f*.
open-hearth, guniting at Kommunarsk plant (1) 17*j*; of open-hearth and double-tank furnaces (5) 118*h*.
of refractory concretes with ceramic tie bolts (9) 209*g*.
runner brick, bottom pouring, by vibration method (3) 67*c*; for bottom pouring of large steel ingot (5) 120*c*.
screeds, thermally insulating, P (9) 214*i*.
semisilica, analysis with atomic absorption and emission spectrometry (1) 32*b*.
setter, ceramic, P (7) 167*f*.
shapes, burned, P (1) 21*b*.
ceramic, P (3) 69*e*.
corrosion resistance to glass melts (5) 121*c*.
for hearth or rotary hearth furnace, design (3) 64*d*.
sheathing, for furnace components, P (1) 22*d*.
sheaths, and pipes from pure oxides, basic properties and

Refractories sheaths *(continued)*
service life (1) 16*h*.
shield, for continuous flow furnaces, P (3) 70*i*.
for shielding, radioactive sources (9) 209*a*.
shrinkwrapping (3) 79*a*.
SiC, mullite, corundum and Dinas, firing by novel firing system (5) 117*g*.
with nitride binders (3) 68*i*.
SiC products for (1) 20*b*.
silica, fused, explosive spalling (5) 117*f*.
silica brick, comparison of refractories under load (9) 208*a*.
dimensional changes in 1300–1500°C (3) 64*f*.
impregnating, P (3) 69*h*.
P (7) 168*f*.
quartz determination in, by X-ray diffractometry (3) 80*c*.
silica crucible, P (7) 168*f*.
siliceous (3) 64*e*.
sillimanite blocks, behavior in doghouse region of Pb glass tank (7) 164*b*.
sintered body, from powdered material, P (5) 122*j*.
SiO_2, for small- and medium-capacity glass tank furnaces (9) 211*a*.
technology (3) 68*j*.
SiO_2 honeycomb, reinforced, P (3) 69*g*.
skewback support, furnace, with buckstay pivot, P (9) 213*d*.
in slab reheating furnaces, improvements (7) 177*b*.
slabs, impregnation with C-containing materials for stopperless casting of steel (9) 210*b*.
from slag chambers, and workpiece scrap (1) 20*c*.
slagging effect on, of combustion gas containing S (5) 120*d*.
sleeve, pipe insulation, P (1) 21*i*.
slide closure, P (1) 22*j*.
slide gate plates (3) 67*a*.
slide valve, at Amagasaki Steel Plant (5) 120*c*.
Mitsubishi metacon-type medium-size (5) 120*g*.
sliding gate closure, for bottom-pour vessel, P (7) 168*i*; for bottom-pour vessels, P (9) 214*h*.
sliding gate valve, P (9) 214*h*.
sling mass, and slinger process, mfg. plant (9) 210*c*.
slurry, nonsuspended, system for handling and applying, P (7) 168*a*.
for soaking pits (5) 117*e*.
specialties (3) 68*c*. material handling and preparation (9) 211*c*.
spherical particles, P (7) 168*j*.
spheroidized powders, for plasma spraying (3) 67*d*.
spinel, phase transformations in contact with slag reagents (1) 18*c*.
and spinel-periclase, wear by slags (3) 68*h*.
spray mixtures, laboratory spray gun for applying (3) 68*e*.
in spray refining vessel, improving life, P (3) 69*i*.
for steel, circulation vacuum treatment (1) 20*f*.
for steel industry (5) 119*h*.
stirring rod, gas, for molten steel (5) 119*f*.
stopper, and bottom-gate tubes, low-fired (1) 18*f*.
grog tubes, for post-tapping vacuum treatment of steel (1) 18*a*.
for molten metal ladle, P (5) 122*b*.
and nozzles containing C, P (1) 22*a*.
of teeming ladle (5) 117*b*.
stopper pipes, and steel-casting stopper ends, surfactants for strengthening seams in (9) 212*j*.
strength, considering interrelation between stress and strain (9) 222*f*.
structural article, P (5) 122*b*.
for supporting ceramics, during firing, P (1) 20*j*.
supports, protector for, P (9) 214*d*.
stackable firing, for hollow ware, P (1) 22*a*.
suspensions, rheological and technological properties (1) 19*e*.
taphole, converter, repair, P (1) 21*h*.
of metallurgical furnaces, plugging, P (9) 213*h*.
taphole plugging device, P (5) 122*c*.
tar-dolomite, chemical interaction in steel smelters (5) 116*d*.
for LD converters (7) 165*i*.
tar-impregnated, P (1) 22*a*.
technology, effect on pore characteristics (3) 64*j*.
terminology, in Comecon member countries (3) 67*g*.
thermal conductivity, hot-wire method of determination (5) 131*d*.
thermal insulation, P (1) 22*e*.
thermomechanical properties, during bending, apparatus for studying (3) 63*j*.
thin-walled, of concave configuration, P (3) 55*d*.
treating process, P (5) 121*d*.
tubes, for casting hot liquid metals, P (7) 168*d*.
tubular fibrous articles, apparatus for forming, P (5) 121*b*.
of vermiculite, expanded (3) 65*b*.
vessel, for holding molten metal, P (7) 168*b*.
vessels, downward-discharge, for molten materials, P (9) 213*a*.
voussoir, P (7) 168*b*.
wall, blast furnace bottom, P (1) 21*a*.
of box-type furnaces, new materials (3) 67*g*.
reducing rate of wear, P (5) 122*d*.
wear, effects of pores (3) 65*c*.
selection (5) 120*d*.
zircon, P (9) 214*a*.
reaction with K salt vapors (1) 19*i*.
zircon brick, effect of CrO_3 + MgO (5) 116*h*.
in ladle (5) 118*i*.
working surfaces, in LD converter ladles (7) 166*g*.
Zr, for stopperless casting of steel (9) 212*a*.

Refractories *(continued)*
ZrO_2, high-, electric-melted (1) 18*h*; high-, electrically melted, temp. fields in molding (1) 20*f*.
reaction with metals (3) 67*c*.
Y in, photometric determination (3) 66*f*.
ZrO_2-Al_2O_3-SiO_2, fused-cast, in glass furnace regenerators (3) 65*d*.
Refractories industry, energy conservation, in steel mill (5) 120*f*.
mechanization (7) 165*c*.
Nippon Steel Corp. (7) 166*c*.
plant, planning and construction (5) 118*h*.
research, and development for (3) 68*f*.
Rumanian (3) 68*h*.
Scottish (3) 68*i*.
steel expansion in (3) 64*b*.
TV in, for plant security and viewing processes (9) 203*d*.
Relaxation, anelastic, in AgCl (1) 35*h*.
dielectric, in oxide glasses, measurement by absorption current method (5) 108*c*.
electrical, of glass, alkali silicate, effect of thermal history (1) 7*j*.
magnetic, in Ni-Zn ferrites (9) 234*f*.
structural, in glass, analysis using rate heating data (3) 55*i*.
of glasses, mixed-alkali (5) 107*b*.
thermal ionic, and formation of vacancies in $BaTiO_3$ solid solutions (9) 241*d*.
Resins, binder, silicate-modified, P (3) 70*a*.
thermoplastic, profile extension process for, P (3) 79*j*.
Resistance, electrical, in Au, thin films (9) 218*b*.
of cement, effect of grinding aids (5) 99*g*.
of C powders, effect of atm (3) 73*f*.
of In, single crystals, effect of Pb impurities on temp. dependence (5) 138*b*.
materials, and resistors, materials for, P (7) 173*a*.
and materials for, P (3) 60*i*.
negative, devices, glass for, P (5) 112*h*.
in GaTe single crystals (7) 171*j*.
of n-type GaAs, conditions causing (1) 36*d*.
in very thin Al_2O_3 films (3) 74*h*.
of SnSb alloy films (3) 72*i*.
surface, of ceramic bodies, reduction, P (3) 77*d*.
treatment of ceramics to reduce, P (1) 29*b*.
Resistivity, electrical, of compacts, of glass and Ni sphere (3) 87*b*.
of Cu_2O-CuO-glass films, thin (3) 73*g*.
in Fe_2A, (A = Sc,Y,Zr,Hf), correlation with magnetic moments in (5) 136*a*.
of glass, borosilicate (3) 57*i*.
of graphite, poco and pyrolytic (1) 18*g*.
positive temp. coeff., in thick films of semiconducting $BaTiO_3$ (3) 74*c*.
study, of $BaGeO_3$ (3) 75*i*.
of WO_3, effect of atm (9) 230*g*.
Resistivity, thermal, of heat-sink bonds, diamond (7) 172*f*.
Resistors, electrical, with ceramic cover, polycrystalline, P (3) 76*j*.
ceramic oxide, P (5) 127*a*.
composite, nitride-and-glass film, P (9) 204*i*.
compositions, P (7) 173*f*.
glass, C-containing, P (5) 111*f*.
of glass frit, and finely divided CdO, P (1) 29*f*.
high-temp., holding and contacting means for, P (9) 219*d*.
for ignition plugs, P (3) 77*e*.
magneto-, thin-film, P (1) 29*j*.
metallic layer, ceramic substrate material for (1) 24*g*.
negative, current-controlled, instabilities in, effect of device geometry (1) 26*j*.
P (9) 219*g*.
PTC, stabilizing hot resistance, P (5) 128*f*.
SiO_2-Si interface, for micropower integrated circuits (1) 27*i*.
for spark plug, P (3) 77*d*.
for temp. measuring, P (3) 77*e*.
thermistor, high-temp., P (9) 219*a*.
PTC compositions, P (9) 220*a*.
thick-film, variable, P (5) 128*h*.
thick-film paste, containing tantala glass, P (5) 128*h*.
thyristor , control of diffusion profiles in, P (3) 76*f*.
varistor, compositions, P (1) 29*b*.
metal oxide, with discrete bodies, P (5) 127*f*; metal oxide, conduction mechanisms in (7) 170*e*.
oxide, P (1) 29*b*; oxide, P (3) 76*j*.
voltage-dependent, P (1) 29*c*; P (3) 77*c*; P (9) 220*f*.
voltage-variable, P (5) 128*j*.
vol variable, hot-pressing (3) 73*f*.
Resonance, antiferromagnetic, in $CoCl_2$ and $NiCl_2$ crystals (1) 35*i*.
in $FeBO_3$ (1) 35*i*.
study of magnetoelastic interactions in hematite (1) 35*i*.
electron spin, of defect centers in SiO_2 films (9) 228*g*.
EPR, of divalent Mn in beta-Al_2O_3 (1) 38*a*.
of formation of S_2O^- on MgO (7) 164*i*.
on GaAs epitaxial layers (1) 25*j*.
of irradiated KH_2AsO_4 (9) 236*g*.
line shape, Cr^{3+} in $ZnWO_4$ (5) 136*h*.
of metamict thorite (5) 138*j*.
of quartz fibers (5) 106*j*.
of structure of quartz glasses (5) 106*a*.
in Ti_2O_3 (7) 187*j*.
ESR, center in X-irradiated CaF_2 crystals (9) 235*b*.
of Ga donors in ZnO crystals (1) 38*e*.
of Mn^{2+} in Ge-Te and Ge-Te-Si glasses (1) 8*c*.
in natural kaolinites (9) 231*j*.

Resonance ESR *(continued)*
studies of doped synthetic kaolinite (3) 87*f*.
ferrimagnetic, study of growth of superparamagnetic precipitates of magnesioferrite in MgO (3) 87*e*.
in YIG:Mn (1) 26*j*.
ferromagnetic, nonlinear, in Fe-Y garnets, birefringence of light on excitation (9) 227*c*.
frequency, of refractories, determining (9) 222*e*.
magnetoacoustic, in antiferromagnetic substances, effect of pressure (5) 138*c*.
NMR, analysis of transitions in VO_2:Al (7) 184*a*.
of complex derivatives of Al borohydride with O-containing ligands (1) 42*f*.
electron-, in thin ferromagnetic film (9) 231*i*.
and EPR of silicates and clays (3) 84*g*.
of $Gd_xY_{1-x}Fe_2$ (1) 42*f*.
line shapes in glass, nonzero asymmetry parameter (1) 5*h*.
magnetic properties, during spin-reorientation transition in $DyFe_{0.998}Co_{0.002}O_3$ crystals (7) 183*f*.
^{29}Si, absorption and adiabatic fast passage to study structure of glass (1) 11*e*.
of spin configurations of Fe ions in $ErFeO_3$ (9) 234*a*.
of structural transformations in borophosphate glass (5) 110*i*.
nuclear quadrupole, to study dynamics of KIO_3 phase transitions (1) 37*g*.
paramagnetic, of Fe^{2+} in crystal lattice of $CaCO_3$ (1) 43*e*.
proton magnetic, study of synthetic gypsum and hydrates (7) 153*d*.
Resonators, electromechanical, P (1) 28*i*.
microwave, open, for measurement of dielectric anisotropy (9) 223*f*.
microwave dielectric, $Ba_2Ti_9O_{20}$ as (1) 24*d*.
piezoelectric ceramic, P (3) 77*a*.
quartz crystal, P (3) 77*c*.
Rhenium, reaction, with metal-like compounds (3) 67*e*.
with ZrC (3) 91*e*.
trioxide, single crystals, growth (1) 39*g*.
Rheometry, of glass, inorganic (1) 11*f*.
Rhodium, in glass, oxidation state and optical absorption (5) 108*i*.
and Ru compositions, P (1) 29*f*.
Rocks, analysis, and ceramic products, by atomic absorption spectrometry (7) 175*e*.
argillaceous, structural study, ion bombardment in, TEM (5) 130*j*.
granitic, thermal behavior (3) 83*e*.
hard, secondary breakage by thermomechanical method (1) 34*d*.
magmatic, as raw materials for glass (9) 201*j*.
optical constants (5) 143*a*.
quartz-glauconite, for Agloporite gravel (5) 102*i*.
ultrabasic, in Bulgaria, geology (3) 82*c*.
Rubidium, deuteride, polymorphic transition in (3) 91*b*.
distribution, in dioctahedral micas (5) 137*c*.
nitrate, reaction with natural aluminosilicates (1) 44*i*.
oxytitanate, with coordination number 4 (9) 238*h*.
$RbAlSiO_4$, crystal structure and twinning (9) 228*e*.
$RbCoO_2$ (7) 183*h*.
$RbLaO_2$, $RbNdO_2$, $RbSmO_2$, $RbEuO_2$, $RbGdO_2$ (7) 160*e*.
$RbNbO(SO_4)_2$, crystal structure (1) 36*a*.
Rb_3LnF_6, double fluorides (1) 37*f*.
Rupture, modulus, hot of BOF refractories (7) 165*g*.
Ruthenium, and Rh compositions, P (1) 29*f*.
Rutile, deformed, transmission electron microscopy (5) 146*i*.
formation, initiation during calcination of hydrated TiO_2 (9) 233*c*.
single crystals, electrical conductivity (9) 231*c*.
sintering, and anatase-rutile transformation (7) 179*c*.
Safety, in cement plant, Angara and Krivorog (5) 100*d*.
Readymix (5) 100*c*.
OSHA, occupational physician comments (3) 78*i*.
Salts, mineral, -vermiculite complexes, insoluble, preparation and properties (3) 89*e*.
molten, dispersion of metallic Li in (3) 87*h*.
Samarium, bromide, preparation, phase equilibria and crystal chemistry (9) 237*i*.
$SmCo_{5+x}$, thermal decomposition (1) 47*e*.
$Sm_{0.4}Y_{2.6}Fe_{3.8}Ga_{1.2}O_{12}$, magnetic properties, heat-treatment behavior (9) 232*g*.
$Sm_{10}Si_6N_2O_{24}$, nitrogen apatite example (7) 186*e*.
$Sm3^+$, in As borax glasses, fluorescence intensities and lifetime (1) 13*c*.
Sampling, apparatus, for analyzing gas, P (1) 33*b*.
to extract samples automatically and continuously, P (9) 224*d*.
P (1) 33*a*.
bulk materials (5) 132*e*.
inspection, role of process curve in (1) 33*c*.
Sands, dry, and humid, electrical properties (9) 231*d*.
foundry, chamotte-based, P (1) 21*d*.
foundry facing, P (9) 213*c*.
glassmaking, in United Kingdom (9) 226*c*.
molding, synthetic, properties (3) 66*g*.
quartzofeldspathic, from Kerminsk deposit (9) 225*j*.
Sanitary ware, bathroom articles, molding, P (3) 72*f*.
bathtubs, dry process enamel apparatus for, P (7) 154*a*.
edges, device for enameling, P (1) 5*e*.
industry, firing techniques in (3) 81*c*.
lavatory, casting truck for, P (3) 72*d*.
molded, P (1) 24*e*.
multipurpose carrier for, P (3) 72*f*.
porcelain, apatite as mineralizer in (3) 70*h*.

Sanitary ware *(continued)*
tunnel kilns for, large (7) 177*b*.
volcanic tuff in (5) 124*d*.
water closet, pedestal, P (1) 24*j*.
Saponite, swelling, and structural organization (3) 92*c*.
Sapphire, deformation, abrasive surface (5) 135*e*.
dielectric constants (9) 234*j*.
enthalpy, to 1500 K by drop calorimetry (3) 77*h*.
fracture-strength anisotropy (3) 88*g*.
O°, creep deformation, correction (5) 136*j*.
0°, creep deformation in (3) 85*f*.
Scandium, oxide, compacting and sintering, effect of grinding mode (1) 37*f*.
electroconductivity (9) 238*d*.
O adsorption by (1) 35*c*.
oxiorthogermanate, crystal structure (9) 228*d*.
oxyfluoride, polymorphism (9) 237*i*.
Scattering, Brillouin, from acoustoelectric domains in ZnO (9) 216*i*.
to determine elastic constants in isotropic silicate glasses (7) 155*i*.
in fused quartz (9) 232*i*.
in $(NH_4)_2Cd_2(SO_4)_3$ and $Tl_2Cd_2(SO_4)_3$ (5) 135*d*.
diffuse electron, in quartz and $AlPO_4$, electron microscopy (9) 231*h*.
light, by acoustoelectric domains in CdS (3) 90*e*.
measurements on thermally stressed glass (1) 9*c*.
by optical glasses (3) 57*h*; at optical resonance, for measurement of particulates (9) 223*j*.
neutron, small-angle, study of SiO_2-Na_2O glass (1) 10*g*.
in PLZT, switching speed (7) 172*f*.
Raman, of light in superconductors (1) 44*d*.
measurements of As-containing oxide glasses (1) 44*e*.
of structure of borosilicate glasses (7) 159*j*.
study of borate glass structure (3) 59*d*; study of structure differences between borosilicate and aluminosilicate glasses (7) 160*a*.
resonance Raman, of Ti_2O_3 (7) 186*a*.
space-charge, in GaAs (5) 126*g*.
X-ray, one-dimensional, from interstratified material, calculation (9) 227*e*.
small-angle, to study glasses (1) 11*i*; small-angle, from glassy SiO_2 (1) 45*d*.
study of phase separation in B_2O_3-Pb-Al_2O_3 glass (7) 159*d*.
Screening and sieving, wet, P (3) 79*c*.
Screens and sieves, molecular, Germanic near-faujasite, surface and catalytic properties (7) 178*c*.
granulation, effect of binder quantity (1) 34*g*.
zeolite A (3) 83*e*.
zeolite X (1) 35*b*.
P (3) 79*a*; (7) 174*e*.
vibrating, P (3) 79*b*.
Screens (fluorescent), conductive coating for (3) 72*e*.
metal mask, for screen-printing, P (9) 219*e*.
Seals and sealing, ceramic-to-metal, electrically conducting, P (5) 127*e*.
P (7) 172*j*.
circuit device, integrated, P (5) 114*b*.
composite ring, and assembly, P (5) 124*h*.
evacuated vessel, with solder glass, P (7) 162*b*.
forsterite ceramic-to-Ti metal (5) 125*j*.
furnace, P (1) 34*b*.
fusion, and sealing compositions for, P (7) 161*d*.
gas turbine regeneration, high-temp. low-friction ceramic coating for, P (1) 5*f*.
glass, electrical, P (7) 161*j*.
Pb-Zn-B compositions, P (9) 205*j*.
for glass-ceramic, surfaces, P (5) 104*c*.
glass fiber, hermetic, using CO_2 laser (1) 8*a*.
glass-glass, or glass-metal, crystalline glass for, P (7) 162*g*.
glass-metal, alloy, P (5) 104*a*.
electroformed hermetic, P (5) 112*g*.
glass-to-dumet wire, alkali Ba silica (3) 55*g*.
glass-to-metal, and ceramic-to-metal, reliable (9) 201*a*.
fine-grained metals for, P fine-grained, P (7) 154*b*.
P (7) 161*i*; P (9) 205*e*.
joints, in refractory devices, P (1) 22*f*.
metal, to low melting glass, role of added metal oxide (3) 59*g*.
metal-to-Al_2O_3, P (9) 219*j*.
metal-to-ceramic, P (3) 76*g*.
Mo, glass-ceramic composition, P (9) 205*i*.
NiO rubbing, high-temp., P (3) 69*f*.
Ni-Ti eutectic, for joining Nb to Al_2O_3, P (1) 29*b*.
partly crystallizable, P (1) 15*a*.
quartz-to-glass, P (3) 62*c*.
refractory, for discharge lamps, P (7) 173*f*.
for regenerator, gas turbine (3) 54*a*.
soldered, vacuum-tight, between ceramic and Al components, P (9) 205*h*.
in tube, glass cathode-ray, apparatus for testing, P (7) 161*c*.
vacuum-tight, P (7) 173*a*.
vitreous, for glass electrical conduits, P (1) 15*i*.
washer, for mechanical seals, P (5) 124*a*.
Seebeck effect, measurements, and interpretation in V_2O_3 (1) 27*h*.
Selenium, -Ag_2Se, film heterostructures, quasi-reversible changes in (1) 42*d*.
-As thin films, atomic arrangements in (1) 24*c*.
crystallization, under action of electrical field (3) 85*e*.
electrophysical properties (5) 139*a*.
electroradiographic layers, restoration of photosensitivity in (1) 45*g*.
Selenium electroradiographic layers *(continued)*
in glass, extraction-photometric estimation (1) 8*e*.
glassy, ir spectra (1) 8*j*.
layers, electrophotographic parameters, dependence on substrate material (9) 217*b*.
electroradiographic, fatigue (1) 37*c*.
structure, effect of substrate material (9) 217*j*.
thin films, transformations from glass to crystalline, liquid, and vapor phase in (7) 170*j*.
Semiconductors, $A^{II}B^{IV}C_2^V$, equilibrium between vapor phase and melt (5) 139*f*.
amorphous, high E-field microwave properties (1) 39*j*.
voids in (1) 27*g*.
arrangement, P (1) 29*g*.
B doping, P (5) 126*j*.
bodies, container for production, P (3) 76*f*.
electrically depositing glass particles on, P (5) 127*f*.
glass-forming mixture with B for producing conductivity zones in, P (5) 127*a*.
hollow, P (1) 28*f*; hollow, P (7) 172*j*.
ceramic materials, P (7) 173*g*.
chalcogenide, state of impurity tin atoms in, effect of crystal-glass transition (3) 57*d*.
C in, O, and N, determination by mass spectrography (9) 222*e*.
composition, intergranular insulation-type polycrystalline composition, P (5) 127*e*.
compounds, dissociation under action of laser beam (3) 86*c*.
III-V, two-stage epitaxial growth, P (5) 128*h*.
II-IV-V_2, properties (5) 144*i*.
thermal treatment, P (1) 29*i*.
crystal rods, crucible-free zone melting, apparatus for, P (9) 219*a*.
crystals, compound, epitaxial growth process, P (9) 219*k*.
electrical conductivity, changes during passage of shock waves from pulsed laser (5) 124*f*; electrical properties of contact between (7) 171*a*.
growth, automatic crystal diameter control for; positively doping during zone melting, apparatus for, P (9) 219*b*.
implanting ions of different mass numbers in, P (1) 29*a*.
damage to, laser-induced (7) 171*f*.
devices, with buried epitaxial layer, P (5) 128*c*.
contacting and connecting in integrated circuits, P (1) 28*e*.
encapsulation packages, P (1) 29*g*.
isolation techniques, bibliography (3) 72*c*.
molecular beam deposition of IIIA-VA compounds for, P (5) 128*d*.
P (5) 128*c*.
planar structure, P (3) 77*b*.
with self-aligned implanted barriers, P (3) 77*f*.
thin-layer mesa-type, P (1) 29*a*.
using simultaneous outdiffusion during epitaxial growth, P (5) 128*d*.
-dielectrics, thin-film layered structures, oscillations of critical temp. in (9) 236*a*.
in electric field, quasi steady state under conditions of escape of electrons (1) 44*c*.
electroluminescent device, P (3) 76*a*.
electrons in, and lattice nuclei in, optical orientation in (1) 42*i*.
elements, making groove in, P (9) 219*e*.
with ohmic contact surfaces, P (9) 219*d*.
protective glass coating for, P (5) 113*h*.
first order, gapless, behavior in strong magnetic field (7) 170*j*.
GaAs, ion implanted devices, P (3) 76*e*.
glass-encapsulated, P (3) 61*g*.
glassy, of Ge-Sb-Se system, optical absorption (1) 10*a*.
helicons in, in quantized magnetic field (5) 126*e*.
high-temp., processing, P (7) 172*j*.
impurity ferromagnetism in, theory (1) 47*d*.
intervalley junction in (1) 26*c*.
laser-induced damage, carrier lifetime and surface recombination in (3) 72*c*.
layers, epitaxially deposited, P (7) 172*d*.
of high resistivity, P (5) 128*d*.
by vapor growth, P (9) 219*a*.
material, epitaxially growing on substrate, P (1) 28*i*.
inspection, by optical techniques (1) 32*i*.
monocrystalline, P (7) 173*d*.
new (3) 74*h*.
P (7) 173*g*.
pyrolytic deposition, reaction device for (3) 77*d*.
single crystals, by floating-zone melting, P (5) 128*b*.
solution growth system for, P (5) 128*e*.
thin uniform layers, sputtering method for growth, P (3) 77*i*.
measurement, technology (3) 75*b*; technology (5) 131*j*.
metal-oxide-, effect of stress (7) 170*h*.
MIS, complementary devices, P (3) 76*e*.
device with high operating voltage, P (3) 76*g*.
Ge/SiO_2, study by secondary ion mass spectrometry (9) 232*e*.
recombination mechanisms in (5) 125*b*.
with MnO matrix, P (7) 173*g*.
MOS, formation using double diffusion, P (3) 76*b*.
IC device, P (3) 76*i*.
P (3) 76*h*.
SiO_2 layer, capture of electrons into Na^+-related trapping sites in (9) 227*e*.
systems, effect of Au on (110) substrates and temp. dependence (3) 73*i*.
Semiconductors MOS *(continued)*
temp. dependence (3) 75*j*.
trapped H for annealing, P (3) 77*a*.
multivalley, corkscrew instability in, electron warm-up effect (3) 73*b*.
nuclei polarization in, optical effects generated by (9) 236*d*.
oxide, for detecting gaseous components (9) 218*c*.
piezoelectric, ZnO, photoelastic effect in (9) 218*e*.
rods, crystal, free-zone melting, P (3) 76*g*.
doping during floating zone melt processing, P (3) 75*j*.
monocrystalline, P (3) 76*i*.
Si, doping with impregnated refractory dopant, P (3) 76*i*.
SiC, P (9) 219*h*.
sign of g-factor in, and epitaxial film deformation during optic orientation effect (3) 72*g*.
single crystals, of group III-V semiconductor compounds, P (5) 128*c*.
or metals, joining, P (1) 28*g*.
Si_12-Ge_{10}-As_{30}-Te_{48}, switching behavior, effects of electrode materials (1) 38*c*.
spreading measurements, B (3) 96*g*.
substrates, surface, depositing deposition agent on, P (7) 173*e*.
Ta-GaAs, Schottky barrier device, P (3) 77*j*.
transparency in, self-induced (9) 238*f*.
vitreous, based on P_2Se_3 (9) 238*b*.
contact-free conductivity in (9) 199*d*.
wafers, baking and handling system, P (7) 173*g*.
controlling insulating film thickness across, P (1) 29*e*.
double-sided exposure, P (5) 127*e*.
SiO_2 layer on, P (5) 127*i*.
Sensors, GaAs pressure (3) 73*c*.
metal oxide O, for automotive use (7) 171*j*.
thermo-, for exhaust gas temp. of automobiles (9) 212*g*.
Separation, magnetohydrodynamic, magnetohydrostatic, for minerals, in magnetic field (9) 225*f*.
wet magnetic, of weakly magnetic minerals (9) 226*c*.
Separators, cyclone, large, operation under special conditions of ZAB preheater (5) 100*h*.
cyclones, air, for closed circuit grinding systems (7) 150*i*.
calcination of Al_2O_3 (5) 133*h*.
rotary flow (9) 221*d*.
photoelectric, for pegmatite raw materials (9) 221*e*.
pneumatic, size separation in (9) 226*a*.
for small particles, P (9) 221*i*.
Serpentine, dehydroxylation-, rehydroxylation (7) 187*f*.
ir spectra, relation to structures (3) 91*j*.
minerals, microbeam X-ray diffraction patterns (3) 89*j*.
reappraisal of structures (3) 91*g*.
Serpentines, synthetic, in system MgO-Al_2O_3-SiO_2-H_2O, aggregate refractive indices and unit cell parameters (3) 84*d*.
Shales, analysis, by X-ray diffractometry (1) 33*c*.
Queenston, high-lime, mining (5) 134*e*.
from West Bohemia (5) 134*b*.
Shear, modulus, of glass, calculation (1) 5*f*.
in high anisotropic materials, measurement (1) 42*b*.
Shock, thermal, testing by air quenching (5) 132*g*.
Shock resistance, thermal, of beta-eucryptite (1) 45*g*.
of brittle materials (7) 179*g*.
of ceramic bodies, effect of firing cycle (9) 230*h*.
Shrinkage, of cement, paste and mortar (9) 196*h*.
deformation, of corundum ceramics during firing, decreasing (9) 208*g*.
of Keramzit concrete (7) 150*a*.
of porous materials, calculation (7) 151*e*.
resistance, of soils, apparatus for 2-dimensional measurement (7) 175*f*.
Siderite, antiferromagnetic, exciton-magnon absorption of light in (1) 38*h*.
Silicates, alkali, and tetraalkyl ammonium, behavior in aqueous solutions (5) 98*c*.
amorphous, and crystalline, by Auger electron spectroscopy (3) 81*c*.
analysis, by atomic absorption spectrophotometry (3) 80*h*.
quantitative electron microprobe, using X-ray spectrometry (9) 223*a*.
with anion, constitution in crystalline 2PbO.SiO_2 (7) 155*b*.
$(Si_{10}O_{25})^{10-}$, new (7) 155*a*.
$(Si_7O_{19})^{10-}$, constitution (9) 228*c*.
Ca-rich, nonisothermal synthesis (3) 82*f*.
chain, new, called inesite (7) 182*g*.
chemistry, recent achievements in (9) 196*j*.
-containing materials, X-ray fluorescence analysis (5) 132*i*.
crystalline, and vitreous, surface layers in alkaline solution (7) 187*b*.
cyclic, vibrational spectra (5) 147*c*.
dissolving, P (9) 226*b*.
EPR, and NMR studies (3) 84*g*.
foam, high-strength, P (9) 197*b*.
hardening, with low hydration capacity (9) 196*a*.
hydrate, phases, formation, and cement stone based on (5) 99*g*.
H_2SiO_3 in (3) 79*g*.
industry, problems of optimization (1) 44*j*.
ion, effect on dissolution of Zn in alkaline solution (9) 230*f*.
manganiferous, alteration, and exogenous formation of Mn deposits (3) 84*e*.
materials, chemical reactions during, effect of gas medium (9) 224*j*.
ground water effect (9) 227*a*.
melt, corrosion of mullite ceramics by (9) 208*d*.
melts, crystal growth in, sample holding technique for study

Silicates melts *(continued)*
(3) 80*f*.
foaming (1) 17*g*.
minerals, color formation in (7) 187*h*.
crystalline layered, brightness, P (1) 34*e*.
distribution of cations in (7) 187*b*.
permittivity in microwave region (9) 236*g*.
treatment for paper coating, P (9) 242*c*.
molded articles, lightweight heat-insulating, P (9) 213*i*.
molten, thermodynamic properties (7) 160*f*.
ortho-, cations, electron structure and properties (9) 231*a*.
paints, P (1) 22*h*.
ribbon, new (9) 235*g*.
rock paste, of inorganic material based on water glass and Na hexafluorosilicate (1) 1*i*.
rocks, analysis by atomic absorption and emission spectrometry (1) 32*b*.
ferrous and total Fe in, by automated colorimetry (1) 32*f*.
and minerals, spectrochemical analysis (3) 80*c*.
science, glass science, B (7) 192*g*.
structures and dispersoid system, B (3) 96*j*.
sheet, reactions of hydrocarbon complexes (9) 235*j*.
solutions, ^{29}Si-NMR spectroscopy (7) 159*b*.
spectra, from electron microanalysis, X-ray analysis (3) 81*b*.
spectroscopy, determination of anions in Ca silicate hydrates (9) 239*c*.
ions in Ca silicate hydrate (5) 145*a*.
thermodynamic relations, among olivine, spinel, and phenacite structures in (7) 188*a*.
Ti in, spectrophotometry (3) 81*a*.
Silicides, formation, by thin films of V on Si and SiO_2 substrates, kinetics (9) 234*f*.
sintered, P (1) 22*i*.
transition metal, solid-phase synthesis (3) 75*c*.
Silicon, amorphous, atomic radial distribution function in (1) 40*f*.
range and kind of order in random tetrahedral structures (1) 44*e*.
As implanted in, electrical activation, effect of quenching (1) 40*i*.
As in, concentration effect of distribution (1) 36*e*.
B implanted into, concentration profiles (1) 40*i*.
carbide, alpha-, plastic deformation (5) 143*j*; alpha-, single crystals, deformation structure (9) 228*h*.
analysis, and materials from it (1) 16*g*.
article of less than full density, P (7) 168*f*.
artifacts, P (7) 168*f*.
beta-, porous articles, P (1) 30*j*; beta-, single crystals, twinning boundary in (3) 93*g*; beta-, free-to-bound transition in (9) 232*d*.
B-doped, elastic moduli (3) 86*j*.
castings, strengthening, effect of additives (3) 64*g*.
coating on C-coated nuclear fuel, P (5) 129*c*; coating for nuclear fuel particles, P (5) 129*h*.
crushed, for refractories (1) 20*b*.
crystalline whiskers, P (5) 121*f*.
crystals, growth by VLS mechanism (1) 26*c*; crystals, P (9) 214*g*.
dense articles, P (5) 121*g*; dense polycrystalline, P (9) 213*a*.
diffusion furnace components, P (7) 168*g*.
direct lattice imaging (1) 36*j*.
electrical properties and microstructure, effect of sintering conditions (5) 138*i*.
fibrous, P (1) 21*j*.
furnace installation, electrically heated, for, P (7) 167*j*.
gas diffuser tube, P (7) 167*a*.
grinding and washing off, effect of grinding method (1) 17*d*.
for heating elements (5) 116*e*.
hollow balls, P (5) 112*a*.
hot-pressed, oxidation, effect of Al_2O_3 (1) 37*g*; hot-pressed, controlled surface flaws in (3) 85*d*.
lightning-conductor (3) 66*a*.
long-period structures, TEM (9) 229*j*.
material, electrical properties, effect of heat treatment (7) 164*f*.
and nitride, low-temp. subcritical crack growth in (7) 183*d*; and nitride, ceramics, molten salt corrosion (7) 184*e*; and nitride, shaped articles, P (9) 214*b*.
nonabrasive, use in rammed masses for linings (5) 121*f*.
P (5) 122*i*.
polycrystalline, channel from, in ingot soaking pits (3) 64*d*; polycrystalline, behavior in air plasma jet (3) 72*a*; polycrystalline, strength (3) 75*e*.
polytypes, study by ir spectroscopy (7) 187*i*.
products, technological parameters during mfg. and service (5) 121*a*.
REFEL, new (7) 165*d*.
sinterable, densification, effect of coarse grains and fibers (3) 64*g*.
and Si_3N_4, wetting by Si and Si alloys (1) 5*c*.
strength, effect of initial C content (5) 116*j*.
surfaced filaments with TiC coating, P (9) 214*g*.
suspensions, rheological and technological properties, and castings from (3) 68*g*.
thin films, recrystallization (7) 172*b*.
whiskers, P; whiskers, grown from vapors, P (3) 70*a*; whiskers, P (9) 213*d*.
6H, liquid-phase epitaxial growth by vertical dipping (3) 74*b*; 6H, epitaxial growth (7) 170*j*.
conversion, to epitaxial SiC by reaction with C_2H_2 (9) 228*e*.
crystals, branchings and bendings (5) 142*c*.

Silicon crystals *(continued)*
coherent bremsstrahlung by electrons and positrons in (5) 136*a*.
interaction of slip dislocations in (1) 40*d*.
defect centers in, optical and photoconductivity studies (5) 137*b*.
diffusion in, of fast impurities (5) 137*g*.
effect, on phase formation and hydration of Ca aluminate (3) 89*b*.
electron-hole plasma, helical instability in (1) 37*f*.
epitaxial, {100}; stacking fault pyramids in (3) 92*e*.
electron mobility in (9) 231*i*.
films, vacuum-evaporated, gas doping, P (7) 172*g*.
in glass, and minerals, atomic absorption spectrometry (7) 175*j*.
Hf silicides on, kinetics of formation (7) 171*e*.
highly doped, behavior of B and Ga in (5) 135*c*.
high-purity, nitridation (9) 235*g*.
implanted, junction depth in, "pulled" anodization and capacitance-voltage measurements (5) 137*e*.
In Sn oxide-coated, as selective absorber (3) 73*h*.
ion bombarded, effect of removal of Ga acceptors (1) 37*j*.
monocrystalline, gettering contaminants in, P (5) 127*a*.
on insulating substrates, P (5) 127*g*.
neutron-irradiated, carrier removal rate in (1) 35*f*.
nitridation, effect of O partial pressure (3) 86*f*.
nitride, aircraft engine turbine bucket, P (3) 70*b*.
alpha, with low O impurity (5) 144*e*.
alpha-, growth, effect of O partial pressure (1) 37*h*; alpha-, in Si-N_2O_2 system, thermal stability (1) 47*j*; alpha-, O stabilization (3) 90*f*; alpha- and beta-, oxidation (5) 143*f*.
with Al_2O_3, hot-pressed, microstructure and etching (9) 235*e*.
articles, P (1) 22*i*.
articles, surface layer, oxidation-resistant (1) 43*h*.
articles, P; turbine blade, P; from Si powder, P; products, P (3) 70*b*.
assembling pieces, P (7) 167*c*.
bodies, P (1) 22*i*.
and carbide, mechanical properties (7) 183*j*.
ceramics, P (1) 21*d*; ceramics, hot-pressed, powder behavior at high temp. (7) 185*d*; ceramics, P (9) 213*e*.
coated hot-pressed, P (7) 167*f*.
conductivity, P (9) 212*j*.
contact currents in (9) 216*j*.
by direct rf sputter deposition (3) 75*b*.
electrical conductivity, P (9) 219*f*.
for engineering application (1) 16*b*.
etching, P (9) 213*h*.
films, Ga diffusion in, ion probe technique for study (3) 74*a*; films, study by backscattering and nuclear-reaction microanalysis (9) 233*g*.
high-density, P (9) 213*f*.
hot-pressed, effect of Y_2O_3 (1) 17*i*; hot-pressed, mixed-mode fracture from controlled surface flaws in (5) 142*f*; thermal fatigue behavior (7) 166*a*.
hot-pressing, P (3) 69*h*.
impact damage and strength, effect of leached surface layers (3) 86*c*.
infiltration, to make composite materials (9) 208*a*.
interconnected parts, P (1) 21*f*.
layers synthesized by ionic-beam method (9) 238*j*.
and oxynitride powders, chemical stability (7) 164*e*; and oxynitride, thermal expansion (7) 188*f*.
P (9) 214*g*.
powder, high-purity alpha-phase, synthesis, P (9) 226*c*.
powder, P (5) 122*j*.
powder and flux mixture, hot-pressing, P (5) 122*b*.
reaction with Al_2O_3 and Y_2O_3, comment and reply (3) 85*c*.
reaction-sintered, creep deformation (3) 85*g*.
recrystallization during hot-pressing (9) 238*c*.
removal of binder from (3) 68*e*.
as rolling-element bearing material (3) 68*j*.
shaped object, P (7) 168*e*.
and SiC, oxidation, effect of H_2O vapor (3) 86*h*; and SiC, fracture stress vs flaw size curves (7) 179*e*.
sintering (5) 126*h*.
strength, density, and N wt gain (9) 212*a*.
thermal fatigue, failure prediction (3) 87*c*.
thin films, conduction in, under nonuniform electric fields (1) 25*a*.
wetting by liquid Si, atm effects (7) 179*h*.
-base ceramic, sintered, P (7) 168*h*.
n-type, current-voltage characteristics (1) 36*c*.
metal-semiconductor transition in (1) 42*f*.
oxide, extremely thin film, P (1) 28*j*.
oxidized, inheritance of defects, by growing oxide film (3) 74*a*.
oxynitride, layers, analysis (1) 35*g*.
P (7) 173*h*.
plastic deformation, dislocation processes during (1) 37*b*.
point defects in, significance of swirls (5) 142*e*.
powder, nitridation kinetics (1) 42*e*; nitridation (5) 142*g*.
reaction, with Al_2O_3 in N atm (9) 238*i*.
ribbons, growth and characterization (1) 39*e*.
and SiC, components, gas-tight connections to, P (9) 214*a*.
elongated structures, P (9) 213*b*.
shaped hollow bodies, P (9) 213*j*.
siliceous material, vitreous, P (9) 206*a*.
siliceous materials, highly, and properties (3) 65*e*.
siliceous rock, estimation of As, Sb, and Bi in (9) 223*f*.

Silicon *(continued)*
siliceous rocks, for lining of steel-pouring ladles (5) 120*h*.
siliconizing, of basal plane surface of graphite crystal (5) 128*i*.
single crystals, defects generated in by thermal oxidation, X-ray diffraction (5) 147*i*.
Kikuchi reflection patterns (9) 234*a*.
-SiO_2, interface states, direct optical excitation (7) 180*g*.
radial distribution function (1) 35*e*.
-SiO_2-Al structures, injection impulse and conduction (1) 26*b*.
-SiO_2 interface, interface state density at, effect of annealing treatments (3) 73*i*.
Si_2ON_2, oxidation, mass spectrometric analysis of vapor in (7) 183*h*.
in Si_3N_4 (3) 79*j*.
thermal oxidation (9) 235*c*.
thick layers, epitaxial, growing, P (7) 172*i*.
thin diffusion layers, B distribution in (5) 137*j*.
thin layers, grown on substrate, compensating boundary charges in, P (3) 76*e*.
thin oxide films on, in microwave magnetoactive O plasma (5) 125*g*.
Y oxynitrides, stability (7) 187*a*.
yttrium oxynitrides, comment and reply (3) 85*c*.
Silicon dioxide, B-containing, reaction products with $TiCl_4$, synthesis (9) 240*a*.
in ceramics, by atomic absorption analysis (5) 131*e*.
cloth support, auto exhaust control catalyst on, P (5) 111*d*.
conduction, and switching in (9) 227*j*.
conduction in, high field, two-carrier model for (7) 160*a*.
Coulomb-attractive centers in, high-field capture of electrons by (9) 232*h*.
deposition, on fused SiO_2 tube, P (1) 14*i*.
doped, charge effects in, P (7) 172*j*.
effect, on viscosity of CaC_2 (1) 37*j*.
electron current in, injected from p-type Si depletion regions (9) 231*f*.
electrons in, optically induced injection (9) 236*i*.
etch rate, control by controlled additions of P_2O_5 and B_2O_3, P (3) 77*f*.
extraction, from grain size fractions of self-disintegration dust (7) 151*c*.
fibrils, P (1) 22*h*.
films, asymmetric two-site hopping model for ETSC in (1) 24*b*.
electron-gun evaporated, effect of heat treatment on stress (1) 25*g*.
on high-resistance Ge substrates (5) 125*i*.
hole and electron transport in (9) 232*j*.
O-deficient rf-sputtered, defect centers in, ESR and thermoluminescence (9) 228*g*.
P diffusion processes in (3) 74*a*.
fine, high-purity, P (7) 178*i*.
P (9) 226*h*.
fine-grain, P (5) 134*h*.
finely divided, surface properties, modifying, P (3) 83*d*.
flint (9) 225*c*.
glassy, small-angle X-ray scattering from (1) 45*d*.
granular foamed, product, P (7) 178*h*.
in gypsum, P (7) 179*b*.
highly active, finely divided, P (1) 34*g*.
high-purity (3) 58*f*.
hydrophobic, P (9) 226*i*.
insulation, 3-component ceramic coating for, P (9) 214*i*.
layer, continuous, over substrate, P (3) 76*a*.
layer, deposited on semiconductor wafer, P (5) 127*i*.
layers, change of surface composition during sputtering (9) 227*h*.
implanted As and B concentration profiles in (1) 40*e*.
microspheres, P (3) 72*g*.
modulus, of Na silicate solution, rapid determination (9) 223*b*.
molten, P (7) 167*f*.
oxygen deficiency in (1) 36*e*.
particles, P (7) 179*b*.
particulate, P (5) 134*h*.
Pb removal from, effect of temp. (3) 82*e*.
reaction, with Al_2O_3 (1) 27*e*.
with ZrO_2 (1) 19*i*.
reactivity, with Mn in steel, relation to form (3) 68*d*.
recycling, P (5) 122*f*.
removal, from materials containing SiO_2, P (3) 83*g*.
-Si, dopant distribution in (9) 229*f*.
-Si interface, Auger analysis (9) 226*i*.
solubility, in Na aluminate solutions (9) 225*a*.
structural state, effect on pozzolanic reactivity (1) 2*e*.
surface, hydroxyl groups on (7) 157*f*.
thermally grown, conductance switching (9) 227*i*.
thin films, impact ionization and positive charge in (9) 217*g*.
thin layers, on Si substrates, atomic absorption spectroscopy (1) 36*f*.
vitreous, anisotropies in (7) 160*g*.
Ar, Kr, and Xe diffusion in, nuclear chemical investigation (7) 158*g*.
cellular, P (7) 167*e*.
dielectric constant, effect of OH^- (9) 230*j*.
equilibrium compressibility between transformation and melting temp. (7) 156*i*.
high purity, low OH content, plasma torch preparation (3) 82*h*.
ionization dilatation effects in (9) 233*i*.
and neutron-radiated, optical constants (7) 158*h*.

Silicon dioxide vitreous *(continued)*
preparation and properties (1) 44*h*.
pressure shear waves in (9) 238*c*.
slip-cast, fracture toughness (1) 17*h*.
specific heat (1) 41*d*.
surface reduction, electron microprobe analysis (7) 156*c*.
Ti-containing, difference ir spectra (3) 86*a*.
transparent, multilayer article, P (7) 162*c*.
Sillenite, piezoelectric, single crystalline wave-guiding thin films (1) 26*d*.
Silver, $AgCl + Ag_2S$, and $AgBr + Ag_2S$ melts, thermodynamics by mass spectrometry (3) 93*e*.
$Ag_6I_4WO_4$, solid electrolyte, electrical conductivity and thermoelectric power (5) 125*g*.
$Ag_6(SO_4)(SiO_4)$, study (9) 240*e*.
$Ag_8M^{IV}Se_6$, and $Ag_8GeX_6^{VI}$ compounds, absorption spectra (3) 84*a*.
chloride, anelastic relaxations in (1) 35*h*.
diffusion of ferrous ion in (5) 137*h*.
particles in photochromic glass, structural change (7) 159*h*.
-KCl molten mixture, overvoltage in Cl discharge on graphite electrode in (3) 90*e*.
diffusion, in As_2Se_3 (1) 36*i*.
in CdSe, ultrasonic study (3) 75*h*.
impurity, effect on electrical and optical properties of As_2Se_3 (9) 229*i*.
oxide, thin layers, physical phenomena during formation (1) 27*a*.
-Pd metalizations, high-tensile-strength thick film, for circuits (3) 73*e*.
sulfate, high-temp. calorimetry (7) 182*b*.
transport, under influence of electric field in glassy As_2Se_3 (3) 93*f*.
on W, adsorption and nucleation, and interaction of deposits with O (3) 87*g*.
Sintering, actinide gel, P (9) 221*f*.
activated (5) 135*f*. of high-refractory compounds (3) 84*a*.
Al_2O_3, from Al sulfates (7) 186*c*.
and $Al(OH)_3$-based materials (5) 120*c*.
beta, inhibition by V_2O_5 (7) 183*b*.
mixtures with quartz and aluminosilicates (5) 145*e*.
BC (1) 20*a*.
CaF_2, effect of particle size and adsorbed H_2O (3) 86*g*.
cermets, W-Al_2O_3 (1) 20*a*.
clay, with mineralizer and surfactant additive, kinetics (9) 215*c*.
clays, obtained during electromagnetic treatment of water (1) 45*c*.
covalent solids (9) 239*b*.
Cr_2O_3 (5) 120*h*. effect of additives (9) 209*a*.
Cu(I) oxide (9) 239*e*.
C_3A (9) 239*f*.
diagrams, representation in new way (9) 235*g*.
Fe oxide, effects of source and calcination (9) 218*e*.
ferrite powders, kinetics (9) 233*f*.
fine-grain material, P (5) 130*c*.
furnace, with H-CO_2 atm, P (5) 129*c*.
glass, effect of forming pressure (3) 56*b*; effect of forming pressure (9) 200*c*.
hard metal alloys, P (9) 214*h*.
initial, of Al_2O_3, vapor-phase-decomposed (1) 45*b*.
of Bi_2O_3 powder compacts (5) 140*c*.
of compacts of spherical Al_2O_3 particles (1) 40*b*.
kinetics, and mechanism (5) 146*g*.
in nonisothermal conditions (3) 91*e*.
liquid phase, of TiN-Co and TiN-WC-Co systems (1) 41*j*.
machine, for production of agloporite, gas-dynamics parameters in (9) 225*h*.
MgO, from brine, kinetics (1) 41*h*.
effect of CaO (5) 137*a*.
effects of B_2O_3 (7) 181*d*.
microwave ferrites, metal powders, varistors, and SiC pressings, pusher-type kilns for (5) 126*f*.
Mo, and NaF, under constant heating rates, kinetics (9) 234*d*.
mullite, effect of fluorides (9) 209*i*.
mullite ceramics (5) 120*d*.
Na beta-Al_2O_3 (5) 125*b*.
Na polyaluminate (5) 124*h*.
Nb, effect of Fe group additives (9) 233*g*.
Nb carbide (1) 45*b*.
Nd_2O_3 (5) 145*g*.
NiO, effect of O pressure (1) 37*h*.
particulates, finely divided, and resulting products, P (1) 31*e*.
powders, P (3) 70*e*.
reaction, of UC (9) 220*e*.
rutile (7) 179*c*.
Sc_2O_3, effect of grinding mode (1) 37*f*.
single-phase ceramics, characterization of grain-growth phenomena during (5) 135*i*.
Si_3N_4 (5) 126*h*.
SnO_2, effect of Nb_2O_5 additive (3) 86*d*.
structural clay products (9) 207*a*.
TiB_2, effect of particle size (3) 65*c*.
TiO_2 (5) 125*d*.
TiO_2 solid solutions, in Cr_2O_3 (3) 92*f*.
U oxide, P (7) 174*e*.
Y_2O_3 (5) 145*g*.
zircon bodies, effect of TiO_2-SiO_2 and TiO_2-Al_2O_3 (5) 138*e*.
Zn_2SnO_4, effect of oxide additives (5) 138*h*.
ZrO_2, with Y_2O_3 (3) 91*e*.
Slags, blast-furnace, making into chippings for use in building materials (9) 195*a*.
calumite, in glass to increase furnace melting rates (9) 199*j*.
converter, for construction purposes (9) 197*g*.
equilibria, simple determination method (5) 120*i*.
hardening, products, physicomechanical properties (9) 195*h*.
machine-plant, as lightweight aggregates (9) 195*c*.
molten, hot, viscous, contacting with gaseous reactants, P (1) 33*j*.
pumice, as building material (9) 196*i*.
and slag-barite, hardening mixtures (9) 196*g*.
Slip casting, $BaTiO_3$ (1) 23*g*.
beta-Al_2O_3, for alkali probes in molten metals (5) 126*h*.
Slips, casting, porcelain, improving casting properties (7) 169*e*.
ceramic, measurement methods for study (1) 23*j*.
ceramic composition, P (9) 219*d*.
thermoplastic, properties, effect of ultrasound (1) 23*d*.
Slurries, clay, dispersed, controlling viscosity, P (9) 216*j*.
foam-containing, for porous inorganic construction material, P (9) 197*a*.
separating, P (1) 31*d*.
Smectite, exchange ion in, variability in position (7) 188*i*.
Smectites, Fe^{3+} in, perturbation, by exchange ions (3) 90*h*.
Sodium, activity, in Na + Pb alloys, measurement by use of beta-Al_2O_3 (3) 89*d*.
aluminate, beta-, synthesis (5) 145*h*.
high purity, and use in making beta-Al_2O_3 bodies, P (9) 213*i*.
SiO_2 solubility in (9) 225*a*.
aluminoberyllosilicate, crystal structure (9) 228*d*.
beta-Al_2O_3, Czochralski crystal growth (1) 36*d*.
high-pressure crystal growth (1) 40*b*.
single crystals, P (3) 77*h*.
sintering behavior (5) 125*b*.
bichromate, pure, P (5) 135*a*.
carbonate, effect on glassmelt mixtures stored in silos (3) 56*d*.
and NaOH, in dry free-running granular material, P (1) 34*g*.
P (5) 135*c*.
reaction with Nb_2O_5 (9) 238*e*.
reactions with Al_2O_3 (5) 144*f*.
and sulfate, from rock salt (9) 203*e*.
from trona mine in Wyoming (3) 83*g*.
chloride, aggregate structures of divalent Mn in, thermal resolution and growth (5) 146*h*.
crystals, cross-slip events in, TEM (1) 36*h*; crystals, electrical and optical effects of impurity associations in (1) 38*i*.
reaction with V_2O_5 (1) 45*i*.
single crystals, electrical conductivity and dielectric properties (9) 231*c*.
-cobalt amphibole, formation under hydrothermal conditions (9) 232*d*.
diffusion, in borosilicate glasses (7) 158*d*.
-Fe sulfate, preventing formation in preparation of Na bisulfate, P (3) 83*f*.
fluoride, single crystals, optical absorption of Cl^- ions in (1) 42*h*.
sintering under constant heating rates, kinetics (9) 234*d*.
gallate, beta-, structure (9) 240*d*.
in gypsum crystals, location (9) 195*b*.
hexafluorosilicate, and water glass for making silicate rock paste (1) 1*i*.
hydroaluminocarbonate, ir spectrum and structure (9) 233*j*.
hydroxide, hydrothermal solubility of BeO in (1) 40*d*.
purification, P (3) 83*g*.
reaction with metasilicate (9) 238*e*.
ions, interdiffusion in glass, Nernst-Planck equation (9) 199*d*.
liquid, compatibility of ceramics with (5) 136*c*.
metasilicate, -sand reaction, kinetics, by emf method (1) 9*a*.
-montmorillonite, suspensions, electrical conductivity (5) 138*e*.
$NaH_3(SeO_3)_2$, crystals, piezoelectricity (5) 125*h*.
(Na,K;Cl,Br);(K,Pb;Cl,Br), surface tension (3) 92*b*.
Na, K||Cl,Br, heat of mixing and ternary excess enthalpy in (3) 91*e*.
$Na_2Ta_2O_5F_2$, beta-, structure (7) 187*f*.
$Na_2(UO_2)SiO_4$, crystal structure (9) 228*d*.
Na_4FeO_4, first oxoferrate with FeO_4 groups (9) 232*c*.
orthophosphate, thermal synthesis (3) 80*i*.
oxide, Shirasu-, preheated mixture, faujasite formation from (9) 232*f*.
oxopyroberyllate, crystal structure (7) 180*h*.
phosphate, solid state high temp. pyrolysis (5) 141*g*.
polyaluminate, synthesis and sintering (5) 124*h*.
salts, reaction with Na-beta-Al_2O_3 refractory (5) 119*d*.
silicate, melts, kinetics of volatilization of soda from (7) 158*e*.
solution, SiO_2 modulus determination (9) 223*b*.
sulfate, effect on structure and strength of cement stone (9) 195*h*.
trihydroselenite, crystal, domain structure, SEM (3) 91*c*.
Soils, density, and moisture content, by nuclear equipment (7) 175*i*.
organic, oxidation by catalytic ceramic coatings, kinetics (9) 198*a*.
shrinkage resistance, apparatus for 2-dimensional measurement (7) 175*f*.
Solder, of Ag oxide, and V_2O_5, P (7) 173*f*.
Soldering, brazing, ceramic articles to one another, P (9) 213*c*.
magnetic ceramic to metal, P (9) 219*c*.
Soldering brazing *(continued)*
mixture, compositions for, P (9) 219*g*.
dry-, highly refractory materials, P (3) 69*i*.
graphite, to graphite, P (7) 167*d*.
metal-ceramic, connection, P (7) 173*b*.
Solders, brazing, high-temp., for metalized ceramics, P (1) 28*e*.
Solidification, of HfO_2-Ta (5) 137*i*.
Solids, covalent, sintering (9) 239*b*.
creep, viscoelasticity, and creep fracture in, B (5) 147*h*.
densities in, electron momentum, nuclear methods for determination (9) 223*h*.
fine particulate, P (9) 221*i*.
flow rate, estimate through openings in bin (1) 32*i*.
high-resistivity, conduction type in, determination by depolarization measurements (3) 85*j*.
inorganic, changes in state and mechano-chemical reactions in prolonged comminution (9) 227*j*.
ion transport in, fast (9) 235*b*.
layer-by-layer analysis by time-of-flight mass spectrometer (1) 41*j*.
structural defects in (1) 46*c*.
surface physical properties (1) 46*h*.
suspension, in liquids, agitator systems for (7) 175*b*.
thermal conductivity, by steady heat flow method using linear heater (3) 80*c*.
transparent, absorption coeff., for fiber optics and high power lasers (9) 198*j*.
Solid state, chemistry, B (5) 147*d*.
progress in, B (3) 95*j*.
element, comprising semiconductive glass composition, P (1) 29*h*.
galvanic cell study, of Ti_2O_3, Ti_3O_5 equilibrium (3) 91*j*.
reaction, Guinier X-ray cameras in (9) 223*b*.
reactions, activation energy, calculation using Moessbauer effect (9) 227*d*.
in oxide systems (3) 91*j*.
to prepare $BaTi_5O_{11}$ (1) 27*a*.
Solubility, of mullite, in HF (1) 20*c*.
solid, of trioctahedral brittle micas in system CaO-MgO-Al_2O_3-SiO_2-H_2O (3) 92*e*.
Solutions, solid, $Al_xGa_{1-x}As$, Hall coeff. in epitaxial layers (9) 232*f*.
Al_2O_3, in Si_3N_4, P (9) 214*h*.
Al_2O_3-Cr_2O_3, thermal diffusivity (1) 47*f*.
BaO-SrO, thermal conductivity (9) 241*j*.
(Ba,Pb)TiO_3, thickness of 90° ferroelectric domain walls in (9) 241*g*.
$BaTiO_3$, thermal ionic relaxation and formation of vacancies in (9) 241*d*.
beta-eucryptite, thermal expansion (3) 93*b*.
beta-Si_3N_4, containing metal oxides, crystal chemistry (9) 228*i*.
from volcanic ash and Al powder in N_2 (1) 35*d*.
Bi-Sb, single crystals, microhardness (5) 142*e*.
Bi_2Te_3-based, grain size effect on figure of merit (1) 39*d*.
of CaO-MgO system, and $Ca(OH)_2$-$Mg(OH)_2$ (7) 152*g*.
of $CaSiO_3$, $SrSiO_3$, and $BaSiO_3$ (5) 136*c*.
Ca sulfate-chromate, and Sr sulfate-chromate (7) 186*f*.
in Ca_2SiO_4-$S4_2GeO_4$ system (9) 239*g*.
(Cd,Pb)S, photoconductive material of, P (1) 29*c*.
$CdSe_xTe_{1-x}$, polycrystalline layers, and physical properties (5) 126*a*.
CdS_xSe_{1-x}, thermal conductivity (7) 188*d*.
in CeO_2-La_6WO_{12} system, electrical conductivity (1) 38*g*.
$CoCr_2O_4$-Co_3O_4 (7) 182*e*.
CoO-ZnO, characterization (7) 179*f*.
Fe-rich spinel, hematite precipitation from, kinetics (9) 234*a*.
$FeTi_2O_5$-Ti_3O_5, and pseudobrookite structure, thermodynamics of formation of compounds with (3) 93*f*.
GaAs-ZnSe, epitaxial layers, preparation and properties (3) 74*e*.
GaP_x-As_{1-x}, hyperlattice based on (5) 144*h*.
GaS_xSe_{1-x}, preparation and properties (9) 237*j*.
Ge-based, interaction of Cu and Sb in (3) 89*f*.
hardening, in Fe-doped MgO (7) 186*f*.
in HfO_2-MgO system, diagram of subsolidus equilibria and stability (9) 229*d*.
layers, by zone recrystallization (5) 144*f*.
Li_2O-NiO, thermodynamic functions, determination by emf measurements (1) 36*g*.
Mg-Al ferrite base, formation (3) 74*g*.
MgO-FeO-Fe_2O_3, equilibria with O (1) 38*d*.
of Mg-Zn ferrites, and ZnO in MgO, thermodynamic properties (5) 143*e*.
$MnCr_2O_4$-Mn_3O_4, spinel, tetragonal distortion (1) 47*c*.
NiO-Cr_2O_3, semiconducting properties and defect structure (1) 45*h*.
$Pb(Zr_xTi_{1-x})O_3$, coexistence region in (3) 86*b*.
periclase, of system MgO-Al_2O_3-Fe_2O_3-Cr_2O_3, exsolution precipitates in (9) 232*a*.
with perovskite structure, vibrational spectra (5) 147*e*.
scheelite, in systems $SrMO_4$-$EU_2(MO_4)_3$ and $EuMO_4$-$Eu_2(MO_4)_3$ (M = Mo,W) (5) 136*b*.
semiconducting oxide, interdiffusion in (1) 40*f*.
semiconductor, homogeneous monocrystals, growing (5) 140*b*.
Si_3N_4, in system Si_3N_4-AlN-SiO_2 (7) 186*j*.
spinel, Al_2O_3-rich, exsolution phenomenon (5) 135*j*.
in system ZnO-Al_2O_3, composition and structure (7) 180*d*.
in CoO-ZnO-Al_2O_3-Cr_2O_3-SnO_2, formation and color (7) 169*d*.
in CoO-ZnO-Cr_2O_3-TiO_2-SnO_2 system, formation and color (3) 88*a*.

Solutions, solid *(continued)*
in TiN-CrN system, and VN-CrN magnetic properties (9) 234*d*.
TiO_2, in Cr_2O_3, structure and sintering (3) 92*f*.
Ti_2O_3-Al_2O_3, and V_2O_3-Al_2O_3, magnetic permeability (1) 41*g*.
V_2O_3-Al_2O_3, interaction between V atoms in (5) 142*d*.
ZrO_2-based (9) 241*g*.
Sound, insulating materials, and heat, argillaceous-fibrous (9) 208*b*.
ultra-, amplification, in InSb (1) 35*d*.
effect on properties of thermoplastic slips (1) 23*d*.
velocity, study of inorganic glasses in temp. dependence (9) 201*j*.
Spacecraft, rocket nozzle, with pyrolytic graphite-SiC microcomposite inserts, P (1) 5*f*.
strain arrester plate, for fused silica tile, P (3) 70*c*.
Spark plugs, insulation, glaze for, P (5) 124*i*.
insulator blanks, sagger for, P (7) 168*d*.
mullite corundum, acoustic monitoring of quality (5) 115*d*.
P (5) 124*a*.
transmitting flashover, and creeping sparks, P (5) 124*b*.
Spectra, absorption, of $Ag_8M^{IV}Se_6$ and $Ag_8GeX_6^{VI}$ compounds (3) 84*a*.
and emission, of Mo in glasses (7) 156*h*.
of Fe group ions in Y aluminate lattice (9) 226*d*.
and fluorescence, of alkali Ca borate glasses (3) 55*f*.
for levels of Fe^{3+} and Mn^{2+} in single crystals of YAG, orthoclase, and Mn silicate (9) 226*e*.
in photochromic glasses (3) 56*e*.
of quartz glasses (1) 5*j*.
dielectric, of Pb germanate crystals (9) 229*h*.
electrical reflectance, of InP, Kramers-Kronig analysis (1) 41*i*.
electron energy loss, extended fine structure above X-ray edge in (7) 182*e*.
from electron microanalysis, of oxides and silicates, X-ray analysis (3) 81*b*.
emission, of GaAs double-heterostructure junction lasers (7) 170*c*.
EPR, of Ti oxides (7) 183*g*.
excitation, of neutral Mg in Si (1) 47*e*.
exciton, of ZnSe single crystals, effect of Zn and Se heat treatment (1) 40*j*.
fluorescence, of Sm^{3+} and Tb^{3+} in As borax glasses (1) 13*c*.
ir, of alkali and alkaline earth metal sulfates (5) 140*b*.
difference, of Ti-containing vitreous SiO_2 (3) 86*a*.
of Fe-V spinel (9) 233*b*.
of glassy Se (1) 8*j*.
of Mn(II) diarsenate (9) 237*e*.
of Na hydroaluminocarbonate (9) 233*j*.
of serpentines, relation to structures (3) 91*j*.
of synthetic aluminosilicate systems (3) 84*f*.
ir absorption, of diffusion parameters of borosilicate-Si system (1) 40*h*.
of Li_3AlO_4 (1) 40*j*.
of silicate glasses (9) 201*f*.
ir reflection, relation to acid durability in PbO-SiO_2 frit (1) 45*d*.
lattice phonon, of Al_2O_3 anodic films (3) 74*b*.
Moessbauer, to calculate activation energy of solid-state reactions (9) 227*d*.
NMR, of ^7Li and structure of glasses of system Li_2O-K_2O-TiO_2-SiO_2 (3) 58*d*.
optical, in CaY_2-$Mg_2Ge_3O_{12}$ (9) 236*f*.
and EPR, of redox interactions of polyvalent ions (Cr, Cu) in glass (3) 58*g*.
of glass-forming melts (5) 108*f*.
Raman, and far-ir reflectivity, of PLZT ceramics (9) 242*b*.
of K_2O-SiO_2 and K_2O-SiO_2-TiO_2 glasses (3) 59*b*.
of $K_5(UO_2)_2F9$ (5) 140*b*.
in ThO_2 (9) 238*f*.
Raman diffusion, of compounds $M_3UO_2F_5$ (M = K,Rb,Cs, NH_4) (5) 140*a*.
thermomodulation, of ferromagnetic semiconductor Cd-Cr_2Se_4, band splitting in (9) 234*d*.
uv electron transfer, of metal ions in borate, silicate, and phosphate glasses (7) 156*g*.
vibration, of phosphosilicate glasses, vapor-deposited (7) 160*c*.
vibrational, of alkali and alkaline earth metal complexes, oxide glasses, and oxyanion salts (5) 111*d*; of alkali metal tetrafluoroborates (5) 111*e*.
of $CdInGaS_4$ crystals, ir spectroscopy (1) 40*i*.
of cyclic silicates and germanates (5) 147*c*.
of $Mg_3(VO_4)_2$ (7) 184*c*.
of MoS_3Se^{2-} and $WSSe_3^{2-}$ (9) 242*c*.
of $Pb_2V_2O_7$ (7) 188*j*.
of solid solution series with perovskite structure (5) 147*e*.
Spectrochemical analysis, of silicates, rocks and minerals (3) 80*c*.
Spectrography, analysis, of enamels (3) 54*h*.
of glass sands (3) 80*j*.
mass, to determine C, O, N in semiconductors (9) 222*e*.
method, to determine Fe, Al, Ti, Ca, and Mg in quartz sand (1) 11*i*.
optical emission, to detect defects in porcelain (3) 71*d*.
of trace impurities, in $SrCO_3$ (3) 81*a*.
Spectrometer, mass, time-of-flight, layer-by-layer analysis of solids by (1) 41*j*.
optical emission, alkali analysis using light reflected from grating (3) 79*c*.
Spectrometry, atomic absorption, analysis of rocks and ceramic products (7) 175*e*.
to determine Sr in TV tube glass (3) 56*f*; to determine Ba in TV tube glass (7) 155*h*.
and emission, in silicate rock and semisilica refractory analysis (1) 32*b*.
of Si in glass and minerals (7) 175*j*.
emission, sensitive, for analysis of airborne particles (3) 80*g*.
flame emission, and atomic absorption, elements and matrices, B (3) 94*h*.
fluorescent X-ray, of bauxites (5) 131*j*.
ion scattering, for analysis of surface composition (1) 31*h*.
ir, of alpha-quartz in atmospheric dust (3) 79*i*.
mass, analysis of vapor in oxidation of Si_2ON_2 (7) 183*h*.
high mass resolution ion microprobe, of complex matrices (3) 80*e*.
secondary ion, study of Ge/SiO_2 MIS structures (9) 232*e*.
for thermodynamics of AgCl+Ag_2S and AgBr+Ag_2S melts (3) 93*e*.
of vapor in chemical vapor deposition of Al_2O_3 (3) 89*c*.
of vaporization of $Ba_3Al_2O_6$ and $BaAl_{12}O_{19}$ (5) 141*h*.
micro-, scanning proton-induced X-ray, in atm environment (5) 131*j*.
X-ray, for quantitative electron microprobe of silicates (9) 223*a*.
X-ray fluorescence, for analysis of ZrO_2 and Al_2O_3 (1) 31*i*.
Spectrophotometers, proper functioning, glass filters as standard reference material (5) 131*b*.
Spectrophotometry, atomic absorption, to determinine B in glass (9) 199*j*.
for silicate analysis (3) 80*h*.
differential, to determine Zr in Pb zirconate titanates (9) 222*g*.
for fabric analysis, of monomineralic kaolinitic soils (3) 81*b*.
ir absorption, in compounds $M_3UO_2F_5$ (M = K,Rb,Cs,NH_4) (5) 140*a*.
measurement, of flocculation rate of clays (9) 239*b*.
of Pb silicate glasses (3) 59*j*.
of Ti, in silicates (3) 81*a*.
Spectroscopy, Auger, of bioglass corrosion films (3) 55*b*.
Auger electron, of amorphous and crystalline silicates (3) 81*c*.
of float glass surfaces (1) 5*d*.
for glass surface analysis (7) 157*j*.
of SiO_2-Si interface (9) 226*i*.
of thin oxide films on Pb-In alloys (9) 227*a*.
of crystals, with garnet structure (5) 145*a*.
dielectric time-domain (3) 80*j*.
emission, for glass analysis (5) 105*f*.
fluorescence (7) 176*c*.
ir, of clay minerals and admixtures, atlas, B (7) 189*j*.
of quartz fibers (5) 106*j*.
and Raman, of Ca_2SiO_4, gamma, beta, and alpha' (7) 182*j*.
study of SiC polytypes (7) 187*i*.
ir absorption, of $K_5(UO_2)_2F_9$ (5) 140*b*.
laser, nonlinear high resolution (9) 223*h*.
Moessbauer, of Chinese glazed ceramics (9) 193*f*.
of Fe-stained kaolinite minerals (7) 181*g*.
of Greek "Etruscan" pottery (9) 193*f*.
NMR, ^{29}Si-, of silicate solutions (7) 159*b*.
photoelectron, to study composition of leached glass surfaces, correction (3) 56*a*.
X-ray induced, of Ca phosphate glasses (1) 13*g*.
properties, of orthovanadates (9) 239*c*.
Raman, in cement chemistry (5) 102*j*; in cement chemistry (7) 152*f*.
of coordination of B in K borophosphate glasses (5) 110*a*.
of K Pb phosphate glasses (5) 109*a*.
of structure of silicate glasses (9) 202*i*.
of silicates, determination of anions in Ca silicate hydrates (9) 239*c*.
silicate ions in Ca silicate hydrates (5) 145*a*.
X-ray fluorescence, and laser, of talc (7) 189*c*.
X-ray photoelectron, for quantitative surface analysis (1) 33*b*.
Spheres, micro-, perlite, P (9) 213*g*.
SiO_2, P (3) 72*g*.
of ZrO_2, composition and structure (9) 208*b*.
Spinel, $(Al_2O_3)_nMgO$, high temp. precipitation in, TEM study (7) 188*c*.
$CdCr_2Se_4$, ferromagnetic semiconducting, from system Cd-Se-Cr_2Se_3 (1) 24*e*.
$CoO.3Al_2O_3$, crystal structure (1) 36*j*.
Co titanate defect, stability (7) 187*a*.
Cr-Fe, crystal-field effects in (5) 136*e*.
Fe-V, ir spectra and mineralogical composition (9) 233*b*.
$MgAl_2O_4$, P (7) 167*e*.
piezo- and thermooptic behavior (7) 185*b*.
MgO-Al_2O_3, O diffusion in (5) 143*g*.
$MgO.nAl_2O_3$, defective, crystal data and solid solution range (1) 44*d*.
$MgOWAl_2O_3$-based, properties, effect of technological factors (3) 65*a*.
$MgO.3Al_2O_3$, defective, crystal structure (9) 228*b*.
Zn aluminate, and gallate, growth in Bi germanate glasses (3) 57*j*.
$ZnMn_{1-x}Cr_xFeO_4$, Moessbauer studies (1) 42*h*.
Spodumene, alpha-, analyses (3) 90*c*.
(I), temp. of transformation to spodumene II, DTA (1) 38*e*.
Spraying, apparatus, flame, for forming refractories, P (1) 21*a*.
P (1) 31*b*; P (7) 175*f*; P (9) 222*d*.
coating on workpiece, P (1) 31*d*.
coatings, using laser-energy beam, P (7) 154*d*.
Spraying *(continued)*
detonation, impact interaction of particles with substrate in (1) 4*b*.
granular material, and binder, apparatus for, P (1) 31*a*.
guns, for hydraulically settable abrasive material, P (7) 167*a*.
laboratory, for applying refractory spray mixtures (3) 68*e*.
irregular shapes, machine for, P (3) 79*h*.
Sputtering, cathode, of refractory borides (3) 72*d*.
gas-flame, to prepare refractories from refractory oxides (9) 211*a*.
rf, of ZnO shear-wave transducers (7) 172*c*.
Stains, pink, $MnSO_4$ in (3) 71*a*.
Standards, activities, U.S., directory, B (7) 189*j*.
for mineral mining, B (7) 189*h*.
NBS, catalog of reference materials, 1975–76 (1) 32*e*.
glass (9) 202*g*.
NSRDS, status report (5) 147*a*.
safety, for installations using nonmedical X-ray and sealed gamma-ray sources (1) 32*j*.
voluntary trade (1) 48*d*.
Steatite, bodies, vitreous phase in, chemical composition (1) 22*i*.
ceramics, high-strength, with broad sintered state range (1) 23*h*.
dielectric, ceramics (9) 217*d*.
machining, with diamond tools (1) 1*b*.
Steels, casting, continuous, flux for, P (5) 104*a*.
coating for, plasma-sprayed TiC-containing, P (7) 167*i*.
coatings for, electrically insulating, P (3) 55*a*.
decarburized, adherence of direct-on white enamel on (7) 154*b*.
direct-on enamel firing, effect of oxidation (1) 4*c*.
oxidation role during firing of enamel in enameling (5) 102*j*.
electrical, insulative coating for, P (7) 154*c*.
electrically melted, melting conditions and properties, effect of charge composition (1) 16*j*.
electrolytic pretreatment, for enameling (5) 103*f*.
enameled, for water boilers (3) 54*g*.
enameling (3) 54*a*. P (3) 54*j*; P (3) 55*b*; P (3) 55*c*.
rimmed, P (7) 154*c*.
expansion, capacity, challenge to refractory industry (3) 64*b*.
-making processes, basic O, MgO and doloma in (1) 19*a*.
phase boundary, with enamel (9) 198*j*.
-quartz, friction and wear between, effect of environment (7) 149*a*.
sheet, enameling, P (5) 104*a*.
etching, attack of reducing acids during (7) 153*g*.
prenickel-flashed, for direct-on white enameling (1) 4*g*.
standard and decarburized, direct-on white enameling on (5) 103*e*.
treating, P (1) 5*g*.
stopperless casting, refractories for (1) 19*c*.
strengthened, by ZrO_2 (9) 227*g*.
substrates, WC and MoC on, P (1) 5*g*.
surface-oxidized, Si-containing, coating, P (9) 198*e*.
treatment, P (7) 154*d*.
treatment process, P (9) 198*g*.
Stellerite, crystal structure (5) 136*h*.
Stoneware, chemical, mullite in, physical properties (3) 71*j*.
raw glazed reduced (3) 71*a*.
Strains, in glass, during forming (5) 110*e*.
high-temp. capacitative, measurement system (1) 32*b*.
measurement, by electric resistance strain gages (1) 32*g*.
Strength, of abrasive grains (9) 193*e*.
of autoclaved specimens, effect of crystal phases of tobermorite and temp. of heat treatment (1) 40*j*.
base, of mixed oxides containing TiO_2 (3) 92*a*.
of $BaTiO_3$, effect of internal stress (3) 86*j*; effect of LiF and MgO (5) 125*a*.
bend, of sapphire (3) 88*g*.
bending, of refractories, apparatus for studying (3) 63*j*.
of brick, in lateral bending (5) 115*g*.
of brittle materials, strain-rate-dependent effect of specimen vol on (1) 11*j*.
of cement, dependence on cement fineness (7) 150*e*.
effect of clinker cooling (3) 51*e*.
mortar, effect of moisture content (3) 51*j*.
paste, relation to structure (7) 152*f*; paste, vs structure (7) 153*a*.
portland paste, effect of curing (7) 151*d*; portland slag samples, growth kinetics (9) 195*c*.
testing, improved methods (1) 2*j*.
of ceramics, effect of flaw shape (3) 86*g*.
compressive, of lightweight aggregates, effect of size and distribution (7) 151*h*.
of sintered Al_2O_3 ceramic (9) 229*a*.
of corundum ceramics, polished, effect of surface defects (3) 64*j*.
degradation, of brittle surfaces (1) 45*j*.
of diamond, synthetic, effect of temp. and matrix (3) 49*b*.
flexural, of brickwork with beam and span loading (9) 207*e*.
of glass, coated containers (1) 12*d*.
effect of surface treatment (3) 56*d*.
glazed plates, effect of thermomechanical stresses (1) 7*c*.
plate, increased (1) 8*i*.
of glass-ceramics, Li disilicate (1) 11*c*.
of glass fibers, in laminate (1) 9*g*.
in glass matrix composites (3) 59*c*.
of hardening structures, in system PbO-CrO_3-H_2O (5) 98*c*.
impact, of ceramic body, relation to porosity (1) 23*e*.
internal pressure, of glass containers (5) 107*j*.
of magnesite, refractories, effect of C, testing temp., and fur-

Strength of magnesite *(continued)*
nace atm (9) 209*d*.
of materials, apparatus for determining, P (1) 33*j*.
mechanical, of industrial glasses, effect of ion exchange (3) 56*b*.
of protective glass for eyeglasses, improving by tempering (3) 57*c*.
of refractories, considering interrelation between stress and strain (9) 222*f*.
of SiC, polycrystalline (3) 75*e*.
of Si_3N_4 (9) 212*a*. after impact damage, effect of leached surface layers (3) 86*c*.
of structural clay products (9) 207*c*.
tensile, of brickwork (5) 115*g*.
of cement mortar and concrete (7) 153*d*.
transverse, of continuous-filament-reinforced 6061 Al alloy (3) 54*c*.
of Zr diboride, after cyclic loading or heating (1) 46*b*.
Strengthening, Al_2O_3, healing (7) 180*g*.
glass, objects, P (9) 206*b*.
sheet (9) 203*i*.
by surface crystallization (1) 11*d*.
SiC, castings, effect of additives (3) 64*g*.
Stresses, compressive, effect on $BaTiO_3$ ceramics (1) 25*i*.
distribution, in ferrite recording heads (9) 218*g*.
effect, on creep in brickwork piers (5) 114*e*.
on electrical properties in CdS (5) 138*b*.
on metal-oxide-semiconductor structures (7) 170*h*.
flow, of MgO single crystals (3) 87*g*.
in glass, during forming (3) 55*b*.
ion-exchanged, finite element analysis (3) 57*f*.
heat, measurement, experience, and legislation (3) 78*e*.
inside glazes, microscopic determination (9) 215*d*.
internal, effect on strength of $BaTiO_3$ (3) 86*j*.
mechanical, and electrical, effect on entropy of glass (1) 7*h*.
in Ni silicide, thin films (5) 126*j*.
-optic coeff., of ZnSe (5) 110*h*.
prestressing, body of ceramic materials, P (9) 222*c*.
in refractories, monolithic (3) 68*c*.
shearing, of powdery and/or granular material, measuring apparatus, P (7) 177*e*.
in SiO_2 films, effect of heat treatment (1) 25*g*.
-strain, behavior of MgO at high temp. (7) 164*h*.
diagrams, for lightweight concretes (5) 101*g*.
distribution in cement paste (3) 51*c*.
relations in ATJS graphite (9) 237*g*.
thermal, analysis of flat plate (1) 12*d*.
in kiln walls (5) 133*a*.
relaxation, in borosilicate glasses (5) 144*j*.
thermoelastic, in tile during firing (9) 216*e*.
thermomechanical, effect on strength of glazed glass plates (1) 7*c*.
uniaxial, effects on Raman freq. of Ti_2O_3 and Al_2O_3 (7) 181*h*.
Strontium, aluminogermanate, orthorhombic (9) 236*j*.
Ba niobate, crystals, optical damage in (5) 143*j*.
carbonate, reactions with kaolinite (7) 185*i*.
spectrography of trace impurities in (3) 81*a*.
in glass, TV tube, atomic absorption spectrometry determination (3) 56*f*.
molybdate, solid phase synthesis, kinetics (9) 234*f*.
niobate, single crystal, P (3) 77*i*.
silicate, $CaSiO_3$, and $BaSiO_3$, crystal chemistry and solid solutions (5) 136*c*.
$SrAl_{12}O_{19}$, crystals (3) 57*j*.
$SrEu_2Fe_2O_7$, crystal growth and crystallographic study (1) 36*i*.
$SrTb_2Fe_2O_7$, magnetic structure, neutron diffraction (7) 184*f*.
$Sr_2Nb_2O_7$, crystal structure (5) 136*g*.
$Sr_6V_6O_{19}$ (7) 181*i*.
telluride, single crystals, ferroelectric, piezoelectric, and optical properties (7) 171*a*.
titanate, Cr^{3+} luminescence center in (7) 182*e*.
optical properties (5) 143*e*.
phonon viscosity and dislocation drag in (1) 43*d*.
structural phase transition temp. in (3) 91*b*.
zirconate, and $SrHfO_3$, chemical properties (1) 35*h*.
synthesis, properties, and sintering (7) 186*c*.
Structural clay products, absorption, of physiological fluids, rate improved, P (5) 115*b*.
drying, kinetics (9) 206*f*.
extruded, effect of electrolytes (9) 206*f*.
facades, potentials (3) 62*g*.
fired, for building units (5) 115*a*.
foamed lightweight, P (7) 163*j*.
grouting apparatus, for wall stones, P (9) 207*g*.
harmful components in, coarse, optical examination (7) 163*d*.
higher quality (5) 115*b*.
industry, in Argentina (1) 15*i*.
automated, benefits and pitfalls (1) 15*b*.
energy cost (3) 63*b*.
improving, to meet new requirements (1) 30*d*.
lightweight, P (9) 207*h*.
materials, properties, at high rates of straining or loading (3) 63*i*.
moldings, porous, P (9) 207*h*.
multistory structures, effect of torsion (5) 114*e*.
production, quality and industrial research (7) 163*h*.
silicone treatment, to prevent bloom, lime wash, mildew, moss (7) 163*f*.
sintering (9) 207*a*.
Structural clay products *(continued)*
slab, panel type prefabricated (3) 63*f*.
strength, and elastic properties (9) 207*c*.
wall panels, laterally loaded design (3) 62*h*.
walls, five story cavity (5) 114*g*.
wheel chock, P (1) 16*c*.
Structure, analysis, of Mn oxides (3) 92*e*.
of beta-$Na_2Ta_2O_5F_2$ (7) 187*f*.
of clays, SEM (3) 91*c*.
defect, high-temp. of alpha-Al_2O_3 (1) 26*f*; high-temp., of alpha-Al_2O_3 (3) 88*h*.
in solids (1) 46*c*.
defects, in ionic crystals, B (9) 243*h*.
electronic, of uranyl ion, field calculation (7) 174*c*.
of EuS films, oxidized (3) 75*f*.
extended fine, above X-ray edge in electron energy loss spectra (7) 182*e*.
of Ge-Se thin films (1) 46*e*.
of glass (1) 8*g*. alkali silicate, study by ^{29}Si NMR absorption and adiabatic fast passage (1) 11*e*.
As_2S_3 (5) 110*j*.
As_2S_3-Tl_2S and As_2S_3-Ag_2S (1) 11*g*.
V_2O_5-P_2O_5 (1) 11*h*.
integrity, monitoring by acoustic emission, B (3) 95*h*.
Landau level, in graphite (7) 183*a*.
of $Mg(OH)_2$ (1) 46*e*.
micro-, of CaO-Al_2O_3-SiO_2 glass-ceramics (9) 202*b*.
of C-fiber-glassy C composite (3) 65*h*.
effect on crack propagation in ZnSe (1) 40*g*; effect on elastic properties of Eu_2O_3-HfO_2 (5) 138*a*; effect on rate of machining ceramics (9) 230*b*.
fine, of alkali-free glazes (5) 123*f*.
formation, effect on properties of hysteresis-loop ferrites (7) 171*b*.
in glass state (1) 9*j*.
of glazes, effect of Ca and Mg oxides (5) 123*j*.
of irradiated materials, B (9) 244*c*.
in Li disilicate glass-ceramics (1) 11*c*.
of MgO (7) 181*c*.
of porous ceramics for ir emitters (3) 66*j*.
of portland cement clinker, B (3) 95*e*.
of SiC, effects of sintering conditions (5) 138*i*.
of Si_3N_4 with Al_2O_3 (9) 235*e*.
of slag cements (9) 195*e*.
of ZrO_2 (9) 228*f*.
model, of allophane (9) 240*b*.
of Na gallate, beta (9) 240*d*.
of Na hydroaluminocarbonate (9) 233*j*.
of $Pb_xSn_{1-x}Te$, films rf sputtered on thin metallic structures (3) 75*f*.
of periclase-yttria bodies (9) 216*b*.
properties, of Ge alloy films (1) 35*c*.
of Ge_xTe_{1-x} films (9) 240*b*.
of phase $V_{1-x}Cr_{2x/3}M_{x/3}O_2$ (9) 240*b*.
of photosensitive glass and glass-ceramic (5) 105*i*.
of semiconducting glasses (1) 8*a*.
-property relations, B (9) 244*a*.
of $SrGa_2Si_2O_8$, and $SrGa_2Ge_2O_8$, synthetic paracelsian analogs (3) 92*g*.
of TiO_2 hydrosol particles (3) 92*e*.
of TiO_2 solid solutions, in Cr_2O_3 (3) 92*f*.
transformation, in borophosphate glass, NMR (5) 110*i*.
St. Venant's principle, validity, measurement of shear modulus in high anisotropic materials (1) 42*b*.
Substrates, Al_2O_3, surface texture formation in (1) 27*a*.
ceramic, and glass, metal films on (5) 126*j*.
P (1) 28*d*.
for receiving resistive film, and Cr/Cr oxide substrate (3) 76*d*.
cleaning process, P (1) 29*h*.
coating, to provide Ti or Zr nitride or carbide deposit, P (1) 28*e*.
with coatings, vitreous enamel electrical resistor, P (7) 154*e*.
deposition on, using shield, P (1) 28*g*.
etched structures in, mfg. by ion etching, P (1) 28*h*.
ferrous, coated, comprising MgO-SiO_2 complex, P (7) 172*a*.
coatings, for, P (7) 154*j*.
glass, improving adherence of metal films on, P (1) 28*f*.
insulator, with thin monocrystalline semiconductive layer, P (1) 28*g*.
layers on, of mutually different compositions, P (5) 127*c*.
magnetic film-piezoelectric, magnetoelastic surface waves in (9) 234*h*.
nonporous, water-repellent treatment for, P (1) 29*c*.
spinel, Czochralski-grown, by solid state diffusion, P (7) 172*b*.
surface, deposition of metal on, P (1) 28*j*.
thin layers on, plasma deposition, P (1) 29*d*.
Sulfates, anhydrous, refinement of crystal structure of anhydrite (3) 84*f*.
basic, and Al hydrates, P (1) 34*e*.
in ceramic materials, complexometric determination (1) 32*e*.
resistance, of cements, new test (7) 176*f*.
of portland cement, effect of calcareous fillers (9) 194*c*.
of slag cements (3) 51*c*.
Sulfur, in combustion gas, slagging effect on refractories (5) 120*d*.
dioxide, in-stack analyzer, using hollow cathode lamps (1) 32*h*.
and NO_x, simultaneous removal from exhaust of combustion furnace, P (9) 225*a*.
pollution (3) 93*c*.
recovery from waste gas emissions, P (3) 79*j*; recovery by
Sulfur dioxide *(continued)*
aluminates (3) 91*f*.
reduction and removal from flue gas (3) 81*g*.
oxide, absorption from flue gas, P (5) 130*j*.
removal from gases, P (5) 130*g*.
removal, from gases, P (7) 178*a*.
SO_3, removal from flue gases (9) 224*a*.
S_2O^-, formation on MgO, EPR (7) 164*i*.
trioxide, on chalcopyrite (7) 179*d*.
Sulfuric acid, recovery, from spent pickle solution, P (1) 31*a*.
Superconductivity, of Nb-Al-Ge alloys, effect of hydrostatic pressure and residual strain (1) 37*c*.
of NbN, effects of preparation conditions (3) 73*e*.
in Rb W bronzes (7) 180*f*.
of V, amorphous (5) 145*g*.
Superconductors, acoustic effects in, nonlinear (1) 42*g*.
anisotropic, anomalies in thermodynamic characteristics, effect of scattering (7) 170*f*.
critical temp., effect of low-freq. peaks of phonon density states (1) 37*d*.
first-order, paramagnetic effect of two-dimensional mixed state in (5) 143*h*.
fluctuation conductivity, in strong electrical and magnetic fields (1) 39*d*.
intermediate state, thermoelectric phenomena in (9) 241*f*.
lamellar, fluctuation conductivity, effect of magnetic field (5) 138*a*.
magnetic properties (1) 41*i*.
light in, Raman scattering (1) 44*d*.
magnetic susceptibility, fluctuation (5) 139*e*.
with quasi particles, optically excited, nonequilibrium state (1) 42*g*.
second-order, conductivity near transition temp. (1) 36*g*.
thin-film, P (3) 77*j*.
Surface, analysis, instrumentation for (1) 32*e*.
thin film compositional (3) 75*g*.
area, measuring apparatus, P (3) 81*f*.
basicity, of mixed oxides containing TiO_2 (3) 92*a*.
crystal, properties, B (3) 94*d*.
defects, detecting in moving bodies, P (7) 177*d*.
imaging, by scanning-laser-induced voltage (7) 176*e*.
low areas, determination by continuous flow method (1) 32*f*.
measurements, microscopical (1) 32*j*.
properties, of Cu(II)-tetraalkylammonium montmorillonites (9) 240*h*.
of mixed oxide catalysts (9) 240*g*.
quantitative analysis, by X-ray photoelectron spectroscopy (1) 33*b*.
study, application of multiple-beam, white-light fringes to (1) 32*b*.
by nuclear methods (3) 80*h*.
texture, formation in Al_2O_3 substrates (1) 27*a*.
Surface active agents, for strengthening seams, in stopper pipes and steel-casting stopper ends (9) 212*j*.
Surface-active substances, effect, on stratified furnace charge (1) 17*f*.
ionic, effect on floatability and electrophoretic mobility of clays (9) 230*g*.
Suspension, aqueous, of clay-dye complexes, polarographic reduction (7) 185*b*.
of solids, in liquids, agitator systems for (7) 175*b*.
Suspensions, clay, bound water, action of electrolytes on (1) 22*d*.
condensation, theory (9) 241*i*.
mineral, sedimentation process in water (7) 149*f*.
of mineral waste, in water, treatment, P (7) 175*c*.
of solid particles, in liquid, P (9) 216*e*.
Swelling, in ceramic ware, acid-resistant (3) 71*g*.
Switches, chalcogenide glass, on-state differential resistance (3) 74*i*.
glass memory, high-threshold thin-film chalcogenide, for display (1) 8*e*.
memory, amorphous chalcogenide, reliability in (3) 75*d*.
threshold, noncrystalline chalcogenide, radiation emission during on state (9) 238*f*.
vanadate-glass (3) 58*g*.
Switching, bistable, in very thin Al_2O_3 films (3) 74*h*.
conductance, in SiO_2 (9) 227*j*.
devices, P (5) 128*g*.
domain, in ferroelectric Bi titanate (9) 233*b*.
effect, in Cd-Ga-Te compound films (1) 27*c*.
in glass films (9) 203*c*.
memory, in Al-Al_2O_3-Al thin film devices (7) 171*j*.
in films of oxide glasses containing Bi (3) 74*d*.
parameters, relation to structure of chalcogenide glasses (1) 11*d*.
properties, of Ge-GaAs pn heterojunctions (5) 126*b*.
of semiconductor, Si_{12}-Ge_{10}-As_{30}-Te_{48}, effects of electrode materials (1) 38*c*.
topological, in garnet film (1) 26*d*.
in VO_2, thin films, ideal model for (7) 171*d*.
Synthesis, of Al_2O_3 gel, hydrated (5) 134*d*.
of $BaTiO_3$, fine-grained (1) 46*j*.
of Ba_2MoO_5, and Ba_3MoO_6 (1) 46*i*.
of BN, cubic, catalysts for (3) 66*a*.
of BP, single-crystal (1) 46*c*.
of Ca hexaluminate (5) 102*d*.
of carbide phases, in systems Ti-B-C and Ti-Si-C (5) 145*i*.
of cordierite, effect of WC (9) 233*a*.
of CrO_2 (9) 240*i*.
of Cr_3C_2, on substrate from evaporated Cr and graphite (3) 68*d*.
of electronic materials, phase diagrams in (3) 75*i*.

Synthesis *(continued)*
of emerald single crystals (9) 240*d*.
of Ge-Si mullite (9) 240*j*.
of glass, phosphate (5) 110*d*.
of HfCl (1) 46*j*.
high-pressure, of $CuTeO_3$ (7) 182*a*.
hydrothermal, of amino acid-montmorillonites and ammonium-micas (3) 88*j*.
of K titanate fibers from K_2O-TiO_2 glass (5) 107*f*.
of kaolinite (9) 240*b*. role of Si/Al and (alkali)/(H^+) ratio (5) 141*a*.
of $La(Ni_{0.75}W_{0.25})O_3$, and $La(Ni_{0.75}Mo_{0.25})O_3$ (1) 46*b*.
of magnesite, by hydrothermal method (7) 187*e*.
of meneghinite (3) 90*j*.
of micas, trioctahedral brittle, in system CaO-MgO-Al_2O_3-SiO_2-H_2O (3) 92*e*.
of mullite, effect of fluorides (9) 209*i*.
of Na aluminate, beta- (5) 145*h*.
of Na polyaluminate (5) 124*h*.
of $NdAlO_3$, and $CeAlO_3$, kinetics (9) 234*f*.
of $NH_4AlO(OH)HCO_3$ (9) 240*i*.
nonisothermal, of Ca-rich silicates (3) 82*f*.
of orthoniobates, 3d-series element (5) 145*j*.
of pigments, blue and bluish-green spinel-type (3) 71*h*.
Fe-containing willemite (3) 71*i*.
of rare earth germanates (3) 92*d*.
of refractory compounds, in systems Ln_2O_3(LnO)-SiO_2, Ln_2O_3-GeO_2, Ln_2O_3-ZrO_2 (3) 92*e*.
of SiC fibers, with high tensile strength (9) 212*c*.
of Si_3N_4, powder, high-purity alpha-phase, P (9) 226*c*.
solid-phase, of transition metal silicides (3) 75*c*.
of $SrMoO_4$, solid phase, kinetics (9) 234*f*.
of $SrZrO_3$, $CaZrO_3$, and $BaZrO_3$ (7) 186*c*.
thermal, of Ca and Na orthophosphates (3) 80*i*.
thermo-, of Ca silicates, high-temp. X-ray diffraction unit for (3) 79*f*.
of $TiCl_4$, reaction products with B-containing SiO_2 (9) 240*a*.
wet, of $BaTiO_3$ (7) 189*a*.
of Yb_2S_3, single crystals (9) 241*a*.
of $YCrO_3$, $NdCrO_3$, and $CeCrO_3$, kinetics (9) 234*g*.
of ZnS crystal phosphors, effect of pressure (5) 138*d*.

Talc, layer structure, preferred orientation due to effect of pressure on (3) 90*j*.
milled, material, P (5) 135*a*.
in Nevada (5) 134*f*.
purification, P (7) 179*a*.
talco-molybdenite, separation, P (3) 83*i*.
X-ray structure analysis (7) 189*c*.
Tantalum, boride, by chemical vapor deposition (7) 170*a*.
mononitride, cubic, and miscibility with 4a and 5a group metals (7) 180*i*.
pentoxide, antireflective coating, P (3) 55*c*.
reaction with Er oxide (9) 238*j*.
single crystals, elastic moduli, effect of H and O (3) 86*g*.
sputtering, in O_2-N_2 mixtures, for variable refractive index and birefringent wave guides (3) 59*j*.
teluride, charge density waves and commensurate superlattices in (5) 137*h*.
Tellurites, para-, Czochralski-grown, suppression of constitutional supercooling in (1) 46*g*.
Tellurium, films, structure, effect of deposition and substrate structure (3) 73*i*.
single crystals, carrier concentration changes in (5) 135*f*.
solubility, in InAs (5) 145*e*.
Temperature, air, in cement plant, measurement of sound propagation time for determination (3) 80*f*.
coeff., of properties of materials, effect on DTA curve (9) 233*i*.
dependence, of electrooptic coeff. and birefringence of Gd-MoO_4 (9) 241*f*.
of low-freq. noise in avalanche reference diodes (1) 27*d*.
of magnetic susceptibility of UGa (1) 47*b*; of magnetic susceptibility anisotropy of transition metal crystals (9) 241*f*.
of magnetization in Fe-P alloys (5) 146*g*.
of MOS devices (3) 75*j*.
of $Pb_{1-x}Sn_xTe$ reflectivity (3) 92*h*.
of plastic deformation in GaAs single crystals (3) 92*i*.
of specific heat of glasses (9) 203*b*.
high, apparatus for establishing, P (7) 175*e*.
effect on cement hydration and hardening (5) 99*h*.
measurement, of hot gases, P (1) 33*b*.
P (7) 177*e*.
-visocity factors, in controlling thermal stability of glass, vitrocrystalline materials and ceramics (9) 203*c*.
Temperature measuring instruments, for lining, refractory, P (5) 132*b*.
new, and traditional, review (9) 223*j*.
pyrometric cones, deformation behavior (9) 222*b*.
Seger cone, compositions, laws governing formulations (9) 223*d*.
sensor, P (9) 224*d*.
thermocouple, pairing, high temp. noble metal (7) 176*f*.
protective casings for, in blast furnaces (1) 19*d*.
reference tables in degrees F for thermoelements vs Pt-67 (1) 33*f*.
thermometer, electrical resistance, P (9) 224*b*.
and moisture meter, P (1) 33*a*.
thick film Pt resistance (3) 75*e*.
using color change, P (5) 132*c*.
Tension, interfacial, dependence on separation for regular solution interfaces (7) 180*f*.

Tension *(continued)*
Poisson's ratio, of refractory bricks and MgO-doped samples, as function of porosity (9) 208*g*.
surface, of (Na,K;Cl,Br) and (K,Rb;Cl,Br) (3) 92*b*.
test device, for small brittle materials (5) 131*c*.
Terbium, Tb^{3+}, in As borax glasses, fluorescence intensities and lifetime (1) 13*c*.
Testing, nondestructive, of ceramics (5) 131*g*.
Thallium, chalcogenides, liquid, transport effects in (5) 126*c*.
fluorohalides, mixed (9) 235*g*.
range 2–14°K in, deviations from Mattheissen rule in (1) 36*i*.
Tl^+, nephelauxetic effect in oxide glasses (1) 6*i*.
$Tl_2Cd_2(SO_4)_3$, Brillouin scattering in (5) 135*d*.
specific heat measurements (1) 45*g*.
Tl_3AsS_4, crystals and acousto-optical systems, P (3) 62*a*.
Tl_3TaS_4, and Tl_3TaSe_4 crystals and acousto-optical devices, P (9) 220*e*.
Tl_3VS_4, and Tl_3NbS_4 crystals and acousto-optical devices, P (5) 114*f*.
uranate, Tl_4UO_5, new (9) 237*d*.
Thermal analysis, of As_2Se_3 (1) 12*j*.
differential, curve, effect of time on shape and interpretation (5) 131*f*; curve, properties of materials on, effect of temp. coeff. (9) 233*j*.
data from inert substances with differential reaction analysis (7) 176*b*.
evaluation of spodumene minerals by (1) 38*e*.
gas (1) 32*g*; of gas, apparatus for (3) 79*d*.
of gypsum (9) 197*c*.
hydrothermal reactions by (3) 53*c*.
of Indian bentonites (1) 48*a*.
of K titanate, kinetics of formation (9) 230*a*.
of reactions of Ca aluminates with gypsum (5) 101*j*.
to study glass crystallization (1) 5*b*; study of reactions of V_2O_5 with metal(II) oxides (3) 77*g*.
diffusion kinetics in (3) 80*h*.
of ferroelectric transition, in K ferrocyanide trihydrate (3) 75*j*.
furnace for, high temp., heating elements in (9) 224*d*.
of $GaCl_3 + 3Tl = 3TlCl + Ga$ system (1) 47*e*.
of gels, Fe_2O_3 and Cr_2O_3 (9) 231*d*.
of Mn oxides (3) 92*e*.
quantitative, of heat of fusion of InAs (5) 139*h*.
review (9) 223*h*.
of solid-phase reaction, kinetics (5) 132*g*.
study, of Pb(II) salts (5) 146*i*.
Thermal properties, of Al_2O_3, hydrated (1) 47*i*.
of CdTe (1) 12*d*.
decay, of V-band in MgO (9) 241*b*.
of glass, changes in Ge coordination number and energy relations in alkali germanate crystals (5) 110*j*.
of granitic rocks (3) 83*e*.
of KCl, CsCl, and KCl + CsCl (1) 47*j*.
stability, of alpha-Si_3N_4 in Si-N_2-O system (1) 47*j*.
of dense grog material reinforced with ceramic filaments (1) 20*h*.
of Dinas brick (1) 20*i*.
of HfCl (1) 46*j*.
of kaolin wool (9) 212*f*.
of oxide refractories (1) 20*g*.
of SiC fibers (9) 212*g*.
of UO_2-Mo composites, measurements (1) 30*b*.
of $V_{1-x}Cr_{2x/3}M_{x/3}O_2$, M = W^{6+} or Mo^{6+} (9) 240*b*.
Thermodynamics, of AgCl + Ag_2S, and AgBr + Ag_2S melts, by mass spectrometry (3) 93*e*.
analysis, of dryers with recirculation heating (7) 177*g*.
of recuperation of physical waste heat from industrial furnaces (7) 177*g*.
of brine-salt equilibria, systems NaCl-KCl-$MgCl_2$-$CaCl_2$-H_2O and NaCl-$MgSO_4$-H_2O (5) 146*d*.
calculations, of chemical transport of GaS (1) 47*d*.
of chemical transport, of GaAs by water vapor (3) 75*c*.
of clay-water system (3) 71*i*; (9) 223*i*.
of compatibility, of ceramics with liquid Na and Li (5) 136*c*.
of Co precipitation, in Co-doped Al_2O_3 (1) 47*d*.
of Cr, compounds (5) 146*j*.
of dawsonite (9) 241*e*.
of formation, of compounds with pseudobrookite structure and $FeTi_2O_5$-Ti_3O_5 solid solution (3) 93*f*.
functions, of mixing in system NiO-CuO (7) 188*i*.
of gas-solid reactions, for purification of bauxite (3) 83*f*.
of glass transition temp., in system CaO-MgO-Al_2O_3-SiO_2 (1) 12*f*.
of insoluble monolayers (1) 47*d*.
of isopolymorphism, presented by systems $SrAl_2Si_2O_8$-$SrGa_2Si_2O_8$ and $SrGa_2Si_2O_8$-$BaGa_2Si_2O_8$ (5) 146*c*.
of mixing, of PbO-SiO_2 melts (5) 143*i*.
of molybdates (5) 146*a*.
of NbN, effect of atom vacancies (5) 135*a*.
of nitride formation, in U-Gd-Sn alloys (5) 146*e*.
of point defects, in Cu_2O (7) 188*b*.
predictions, of reactions in transition metal phosphate melts (1) 47*c*.
properties, of Cr_2Te_3 (1) 27*d*.
of Ga + Sb (3) 93*d*.
of Li polymolybdates (5) 146*b*.
of $Li_{0.5}Fe_{2.5}O_4$ and $Li_{0.5}Al_{2.5}O_4$ (7) 182*j*.
of molten silicates (7) 160*f*.
of solid solutions of Mg-Zn ferrites and ZnO in MgO (5) 143*e*; of solid wustite (7) 188*j*.
of superconductors, effect of scattering on anomalies in (7) 170*f*.
of U oxides (7) 174*e*.

Thermodynamics properties *(continued)*
of V, Cr, and Mn silicides (7) 188*j*.
of V_nO_{2n-1} (n = 4-9) (5) 146*b*.
of V_2O_3 (5) 143*h*.
quantities, at high temp., determination by thermogravimetry (7) 176*i*.
relations, among olivine, spinel, and phenacite structures in silicates and germanates (7) 188*a*.
study, of glassy states of pure simple compounds (1) 47*c*.
of PbO-Na_2O-SiO_2 system (7) 188*a*.
of YS (5) 147*a*.
Thermoelectricity, devices, including alloy of GeTe and AgSb-Te_2, P (7) 173*j*.
phenomena, in intermediate state of superconductors (9) 241*f*.
power, variation during O adsorption on ZnO thin films (3) 75*d*.
Thermography, of $Zn_3(PO_4)_2$·$4H_2O$ (9) 241*g*.
Thermogravimetry, curves, of solid systems, simultaneous determination with electrical conductivity (3) 79*d*.
for determination, of thermodynamic quantities at high temp. (7) 176*i*.
differental, analysis of kinetics of K titanate formation (9) 230*a*.
differential, curves, for calculation of degassing rate (1) 35*e*.
of gypsum (9) 197*c*.
of kinetic parameters, of dehydroxylation of clay and minerals (3) 93*f*.
of Pb_2NbCoO_6, and $Pb_2Nb_2CoO_9$ (5) 146*e*.
Thermophysical properties, of kaolinite (1) 27*e*.
of refractories, resin binder-based (1) 20*i*.
Thickness, dependence, of cluster density of epitaxial and nonepitaxial films (3) 75*f*.
Thixotropy, behavior, analysis, multiparameter theories in (1) 42*j*.
Thorite, Gibbs energies of formation (7) 182*h*.
metamict, EPR and recrystallization (5) 138*j*.
Thorium, dioxide, elastic properties, effects of inhomogeneous porosity (1) 38*c*.
Raman spectra (9) 238*f*.
sintered, pore growth in (5) 144*b*.
thermoluminescence and fluorescence in (7) 188*c*.
divanadate (9) 229*h*.
molybdate, double (9) 237*c*.
in optical components, by X-ray fluorescence (3) 80*a*.
orthovanadate, double, crystallographic and chemical data (9) 228*g*.
oxide, pure, mfg. (9) 226*a*.
tetrachloride, reaction with alkaline-earth metal chlorides (1) 45*a*.
$ThMn_2Si_2$, and $ThMn_2Ge_2$, magnetic properties and magnetic structure (1) 41*i*.
Thulium, $TmFeO_3$, anisotropy on linear magneto-optical effects in (9) 226*f*.
Tile, acoustic, electric heating during mfg. (5) 117*b*.
backing plate for, P (1) 24*a*.
black zone in, elimination with chalk and increased firing temp. (5) 123*j*.
body, self-attaching fired, P (9) 216*e*.
cast, role of fillers in (1) 23*f*.
ceramic, "split," and half brick facade claddings (7) 163*b*.
glazes and colors on, industrial application (9) 215*j*.
grout compositions for, P (7) 170*f*.
making (7) 149*d*.
thermoelastic stresses in during firing (9) 216*e*.
die, case assembly with WC inserts for, P (5) 124*f*.
facade, clay-sand, based on phosphate binder (9) 207*e*.
decorative, dyes in glazes for (9) 215*g*.
from rocks, low-temp. raw glazes for (5) 123*f*.
facing, interrelation between phase composition and properties (9) 215*a*.
new glaze composition for (1) 23*b*.
production technology (9) 215*j*.
faience, volcanic tuff in (3) 72*c*.
fired, separating device for stacks, P (1) 24*h*.
firing, method and kiln for, P (7) 170*f*.
floor, from clays of Chukurovo deposit (9) 206*g*.
low-melting clays in (5) 124*d*.
for office, P (1) 24*f*.
perlite in (3) 72*a*.
freezing strength, French studies (3) 62*j*.
glazing, dry (5) 123*e*.
industry, coal added to clay to reduce fuel consumption (5) 132*e*.
pneumatic transport of granules without breaking down (5) 130*d*.
Tonindustrie Heisterholz, extends production (7) 163*g*.
insulation, repair of damage (7) 166*f*.
interlocking, for covering insulated water-cooled pipe structure, P (7) 167*d*.
lightweight (7) 169*a*.
low-shrinkage, for inner facing of walls (5) 123*f*.
memory (7) 149*d*.
mosaic, effect of wollastonite in (3) 92*i*.
with low-temp. sintered enamel surface (9) 216*a*.
prefabricated panels, P (9) 216*d*.
by papermaking method (1) 23*c*.
patterned, for decorative amusement or instructional purposes, P (7) 170*h*.
roof, automated line (5) 115*f*.
smoked, smoking process in (9) 207*b*.
roofing, frost resistance (9) 206*h*.
new (7) 163*c*.

Tile roofing *(continued)*
P (1) 16*c*.
packaging, from factory to building yard (5) 115*a*.
ridge, P (1) 16*c*.
silica, fused, strain arrester plate for, P (3) 70*c*.
single fired, automation in selection (9) 214*d*.
sintering, effect of fluxes (1) 23*h*.
slip in, by automation (9) 215*e*.
stoneware, single-fire, automation in plant (9) 215*e*.
wall, calcareous clays for (5) 122*h*.
from coal beneficiation wastes (5) 124*b*.
drying (5) 123*e*.
and floor, relation between climate and frost resistance (9) 216*c*.

Tin, antimonide, alloy films, electrical resistance (3) 72*i*.
-ic oxide, crystals, growth by vapor deposition (5) 140*b*.
Gibbs free energy of formation (7) 187*a*.
sintering, effect of V_2O_5 (1) 38*a*; sintering, effect of Nb_2O_5 additive (3) 86*d*.
thick film (7) 172*c*.
thin films, by sputtering and anodizing (1) 27*f*.
:Tb^{3+}, luminescence and charge compensation in (5) 125*c*.
-ous oxide, single crystals, photoluminescence in (9) 234*j*.
oxide, activities in SnO-SiO_2 system (9) 226*f*.
coating, P (9) 206*h*.
coatings, on glass surfaces, ESCA examination (7) 157*a*.
transparent electrically conductive coatings on substrate, P (7) 172*b*.
range 2–14°K in, deviations from Matthiessen rule in (1) 36*i*.
$SnTa_2O_6$, crystalline structure (9) 228*f*.
Sn^{2+2}, nephelauxetic effect in oxide glasses (1) 6*i*.
surface conductivity, in magnetic field).

Titanium, Au metallizations, on GaAs, interlayer diffusion phenomena in (3) 74*a*.
boronitrides, powders, in superhigh-freq. discharge plasma (1) 18*d*.
carbide, coating, chemical vapor deposition on carbide cutting tool (1) 16*c*; coating for C-containing substrates, P (3) 69*g*.
cutting bit, P (3) 70*e*.
densification and recrystallization characteristics (1) 16*i*.
hard metal based on, P (1) 21*d*.
oxidation resistance in air (3) 68*f*.
powders, abrasive properties (1) 16*c*; powders, abrasive properties (1) 16*d*.
steel-base hard facing, P (5) 122*c*.
coating, inorganic, applying to glass surface, P (5) 111*c*.
diboride, electrolytic preparation from oxides and mineral concentrates (1) 34*f*.
oxidation (3) 65*e*.
powder, sintering, effect of particle size (3) 65*c*.
dioxide, calcination, effect of atm and electric fields on crystal growth of anatase powders (3) 84*a*; calcination, anatase-rutile transformation (7) 179*h*.
with controlled particle size, P (3) 83*i*.
films, chemical vapor deposition, P (3) 76*g*.
hard, P (5) 134*h*.
hydrated, calcination, rutile formation during (9) 233*c*.
hydrous oxide coated, P (1) 34*i*.
machining with diamond tools (1) 1*b*.
P (5) 135*d*.
pigmentary, P (3) 83*e*.
porous, immobilization of urease on, P (3) 69*h*.
powders by vapor phase reaction (9) 232*j*.
reaction and sintering with ZrO_2, effects of grain size (7) 181*f*.
reactions with PbO and ZrO_2 (9) 238*a*.
recovery from ores, P (1) 35*a*.
semiconductor (5) 144*g*.
single crystals, chemical vapor grown (3) 72*e*.
sintered bodies, use in anodic photooxidation of water (3) 72*j*; sintered bodies, electrical conductivity, doping effects of Al_2O_3 or Nb_2O_5 (9) 229*i*.
sintering and electrical conductivity (5) 125*d*.
surface, adsorption of H_2O_2 on (7) 179*e*; surface, hydroxyl groups on, relation to photoadsorption of O (7) 186*f*.
thermal diffusivity (3) 93*b*; thermal emission, electrical conductivity, and Hall effect for defect study in (7) 188*d*.
ultrafine powders, reactivity with $BaCO_3$ (9) 238*b*.
by vapor-phase oxygenolysis of $TiCl_4$ (5) 146*g*.
-SiO_2 and TiO_2-Al_2O_3, effect on sintering zircon bodies (5) 138*e*.
disilicide, enthalpies and heat capacities (1) 38*c*.
molybdate, properties (3) 85*e*.
nitride, fine powders, by vapor phase reaction of $TiCl_4$-NH_3-H_2-N_2 system (3) 87*g*.
oxide, deposition, P (1) 28*g*.
lower, single crystals, by chemical transport reaction (1) 44*i*.
magnetic susceptibility and EPR spectra (7) 183*g*.
semiconducting, magnetic and electrical properties (5) 110*b*.
sesquioxide, Raman freq., effects of uniaxial stress (. thermal expansion (7) 188*e*.
in silicates, spectrophotometry (3) 81*a*.
tetrachloride, reaction products with B-containing SiO_2, synthesis (9) 240*a*.
TiP_2O_7, formation on dehydration of $Ti(HPO_4)_2.H_2O$ (9) 232*b*.
$(Ti_xV_{1-x})_2O_3$, electrical properties (5) 138*g*.
$(Ti_{1-x}V_x)_2O_3$, elastic constants at low temp. (7) 181*j*.

Titanium *(continued)*
Ti_2O_3, EPR (7) 187*j*.
reflectivity, resonance Raman scattering, and energy level structure (7) 186*a*.
single crystals, growth (1) 39*h*.
Ti_3O_5 equilibrium, solid state galvanic cell study (3) 91*j*.

Titration, coulometric, solid-state, critical analysis and application to wustite (1) 27*j*.

Tobermorite, crystal phases, effect on strength of autoclaved specimens (1) 40*j*.
slurry, and molded products, Ca silicate hydrate for (1) 2*a*.
thermal transformation (3) 53*f*.
14 A, from SiO_2 glass (7) 157*d*.

Tools, with abrasive surfaces, P (3) 49*f*.
borazon, and diamond compact (3) 49*a*.
carbide, surface-treated cemented, P (1) 22*a*.
cutting, carbide, chemical vapor deposition of TiC coating (1) 16*c*.
cemented carbide, coating with Al_2O_3 (5) 116*f*.
ceramic, of tougher materials (1) 19*g*.
green tile ribbon, P (3) 79*e*.
for plates of cleavable materials, P (9) 221*h*.
tip for roughing or finishing metal surface, P (1) 21*i*.
metal machining, high-speed, hard sintered composition for, P (1) 21*d*.

Topography, of Ge, laser-irradiated (1) 47*f*.
X-ray, of antiferromagnetic domains in $KNiF_3$ (3) 90*d*.
X-ray diffraction, of magnetic domains in orthoferrites (7) 172*g*.

Torsion, double-, specimen, kinetic considerations (7) 186*g*.
effect, on multistory structures (5) 114*e*.

Tosudite, Li-bearing (7) 183*b*.

Transducers, ferrite magnetic head, P (9) 219*i*.
glass-backed, and glass-backed structures, P (7) 172*h*.
high-temp., and housing, P (5) 127*d*.
integrated, P (5) 127*e*.
torsional ceramic, P (1) 29*a*.
ZnO shear-wave, rf sputtering (7) 172*c*.

Transistors, field-effect, diffusion guarded metal-oxide-Si, P (1) 28*g*.
P (1) 28*b*.
substrate, determining impurity concentration in (5) 125*h*.
thin oxide films for (7) 170*a*.
film, by continuous process, P (7) 172*b*.
integrated, with epitaxial contact to buried subcollector, P (9) 219*b*.
mfg., process monitoring in (3) 74*h*.
microwave power, trends in (3) 75*g*.
MOS, P (5) 127*h*.
self-aligned, P (3) 77*e*.
threshold voltage shift, by ion implantation (9) 218*c*.
Si, radiation resistance, with Si oxide coating, P (5) 127*d*.

Translucency, materials, opacity (7) 179*h*.

Transport, processes, in composite media (1) 47*h*.

Tridymite, high, in Middle Eocene deep-sea chert (5) 140*e*.

Tritium, balance, in high-temp. gas-cooled reactors (9) 220*g*.

Tubes, camera, electronic, P (9) 204*e*.
capillaries, shape of meniscus of scales growing into (1) 11*g*.
cathode-ray, envelopes, P (7) 161*d*.
with luminescent silicate, P (7) 161*e*.
ceramic, P (7) 167*f*.
electric discharge, vaccumtight electric leadthrough in, P (5) 114*i*.
gas diffuser, of SiC, P (7) 167*a*.
glass, anode Geiger-Mueller, P (1) 14*f*.
continuous, by centrifugal casting, P (7) 161*g*.
external internal channels in, P (7) 161*j*.
mechanical mfg. (5) 108*b*.
P (5) 112*j*.
porous, coated with thin cellulose acetate, for desalination (5) 105*i*.
quartz, crystallization (1) 6*b*.
reinforced, P (5) 113*j*.
reshaping, P (9) 205*h*.
reusable sealed coupling for, P (9) 206*c*.
with selective spectral transparency (3) 58*h*.
TV, Sr in, atomic absorption spectrometry determination (3) 56*f*.
glow-discharge, P (1) 14*c*.
internal surfaces, apparatus for coating, P (7) 175*d*.
microwave power, internal ferrites in (3) 75*h*.
monocrystalline bodies, growing from melt, P (3) 76*c*.
TV, glass, Ba in, determination by atomic absorption spectrometry (7) 155*h*; glass, P in (7) 155*j*; glass, Cr in (7) 156*b*.

Tungstates, transition-metal, thermophysical measurements on (7) 188*d*.

Tungsten, Ag on, adsorption and nucleation, and interaction of deposits with O (3) 87*g*.
boride, by chemical vapor deposition (7) 170*a*.
densification kinetics in hot-pressing (3) 64*b*.
carbide, effect on cordierite synthesis (9) 233*a*.
heat capacity and entropy (7) 182*j*.
purification, P (1) 35*a*.
on steel substrates, P (1) 5*g*.
crystals, static skin effect in, effect of electron-hole transfers (5) 137*d*.
trioxide, resistivity, effect of atm (9) 230*g*.
$WSSe_3^{2-}$, vibrational spectra and force constants (9) 242*c*.
W(VI) ions, sorption by hydrated ZrO_2 (9) 239*a*.

Turbines, blade, composite gas, P (7) 167*g*.
gas, with internal cooling channels, P (7) 167*a*.
retaining in slotted steel rotor or blade seating ring, P (7) 167*b*.
rotating, ceramic thermal protective coating withstands (7) 153*g*.
Si_3N_4, P (3) 70*b*.
bucket, aircraft engine, Si_3N_4, P (3) 70*b*.
casings, protection, P (1) 21*j*.
gas, engine housing, P (5) 121*j*.
engines, heat-exchanger assembly for, P (7) 167*b*.
heat exchanger for, P (1) 22*e*.
materials, 1974 proceedings, B (3) 95*c*.
regeneration seals, high-temp. low-friction ceramic coatings for, P (1) 5*f*.
regenerator seal materials (3) 54*a*.
rotary heat exchanger for, P (1) 22*f*.
radial-flow, P (1) 21*j*.
rotor, composite ceramic, P (1) 21*g*.
rotor disk, and blade configuration, P (1) 21*c*.

Ultrasonics, inspection, apparatus, for pressure vessels, P (1) 30*c*.
method, to determine absolute thermal expansion of TiO_2-SiO_2 glasses (3) 56*g*.

Uranium, boride, complex (7) 180*a*.
carbide, or nitride, P (5) 129*d*.
compounds, P (3) 83*j*.
dioxide, amorphous, crystallization (1) 29*i*.
bubble coalescence in, kinetics of early-stage gas porosity development (5) 129*a*.
coated particle fuels, gas pressure in (3) 77*h*.
crack healing in, correction, comments (3) 77*f*.
extraction of precipitates assoicated with fission gas bubbles in (5) 128*e*.
for fuel and/or breeder elements for reactors, P (1) 30*a*.
microglobules, P (9) 221*c*.
powder, P (9) 221*g*.
single crystal surfaces, faceting (9) 232*b*.
structures of controlled density and grain size, P (7) 174*f*.
surface fission tracks in (7) 173*j*.
thermal-stress fracture and fractography in (5) 146*i*.
total pressure over (5) 129*b*.
tube and Al_2O_3 spiral, made with removable mandrel (1) 29*i*.
hexafluoride, absorption in aqueous Al nitrate, P (5) 129*b*.
P (7) 174*f*.
recovering, P (5) 130*f*.
monocarbide, reaction sintering (9) 220*e*.
nitride, P (9) 221*g*.
or U carbonitride bodies, P (9) 221*g*.
oxide, enthalpy to 1500 K by drop calorimetry (3) 77*h*.
higher, P (5) 129*g*.
nonstoichiometric, thermodynamic properties (7) 174*e*.
P (3) 78*j*.
powders, granulation (5) 128*i*.
sintering, P (7) 174*e*.
spheroidal particles, P (1) 30*a*.
recovery, from H_3PO_4 by-product brine raffinate, P (5) 135*b*.
reserves, and resources, B (3) 95*f*.
sesquiselenide, heat capacity (5) 128*i*.
in soils, by two state ion exchange (3) 80*i*.
trichloride, interaction with alkaline earth metal chlorides (9) 220*c*.
and U alloys, electroslag refining, P (1) 30*e*.
UF_6, fluidized reactor reduction to UO_2, P (1) 30*f*.
UGa, magnetic susceptibility, temp. and field dependence (1) 47*b*.
UGa_2, magnetic, magnetoelastic, and electrical properties (1) 41*g*.
neutron diffraction study (1) 42*j*.
UO_2F_2, ^{18}O enrichment process in, using laser light, P (3) 78*i*.
UO_2^{2+}, electronic structure, field calculation (7) 174*c*.
UPd_4, magnetic properties (3) 89*b*.
U_3O_8, thermal expansion anomaly and thermal conductivity (1) 30*a*.
U_3Sb_4, neutron diffraction study (1) 42*a*.
U_4O_9, elastomechanical properties (3) 77*g*.
^{235}U, concentration in mixtures with ^{238}U, P (9) 221*a*.

Vanadates, ortho-, and related compounds (7) 184*c*.
spectroscopic properties (9) 239*c*.

Vanadium, amorphous, superconductivity (5) 145*g*.
atoms, interaction, in V_2O_3-Al_2O_3 solid solutions (5) 142*d*.
carbide, densification and recrystallization characteristics (1) 16*i*.
Hall coeff., as function of temp. and C concentraton (7) 182*i*.
dioxide, metal-semiconductor transition in (9) 233*h*.
range of homogeneity, and effect of composition on physical properties (5) 144*j*.
thin films, ideal model for switching in (7) 171*d*.
-TiO_2, co-sputtered films, phase transition in (3) 74*a*.
:Al, NMR analysis of transitions in (7) 184*a*.
disilicide, enthalpies and heat capacities (1) 38*c*.
nitride, fine powders, by CVD method (1) 39*h*.
oxide, plasma freq. (1) 43*i*.
and oxides, films, tunnel effect in (3) 75*h*.
pentoxide, corrosion of Al_2O_3 by (5) 116*h*.
d-electrons in (7) 180*f*.
effect on sintering SnO_2 (1) 38*a*.
flux, temp. distribution and thermal convection in, for emerald single crystal synthesis (9) 240*f*.
physicochemical transformations (9) 237*e*.

Vanadium pentoxide *(continued)*
reaction with NaCl (1) 45*i*.
reactions with metal(II) oxides, DTA study (3) 77*g*.
reduction by $MoSi_2$ (7) 185*j*.
recovery, from bauxite residues (3) 83*b*.
sesquioxide, thermal expansion (7) 188*e*.
thermodynamic properties (5) 143*h*.
silicide, thermodynamic properties (7) 188*j*.
single crystals, elastic moduli, effect of H and O (3) 86*g*.
thin films, on Si and SiO_2 substrates to form silicide, kinetics (9) 234*f*.
trioxide, electronic transport in (7) 183*j*.
semiconducting, Seebeck measurements and interpretation in (1) 27*h*.
solubility in wustite (3) 91*j*.
V_nO_{2n-1}, (n = 4-9), thermodynamic properties (5) 146*b*.
$VO_{2-x}F_x$, magnetic and electrical properties (7) 183*f*.
$VSBO_4$, oxidation states in (9) 236*b*.
$V_{1-x}Cr_{2x/3}M_{x/3}O_2$, M = W^{6+}, or Mo^{6+} structural and thermal properties (9) 240*b*.
Vaporization, of $Ba_3Al_2O_6$, and $BaAl_{12}O_{19}$, mass spectrometry (5) 141*h*.
of CdO (5) 147*a*.
of glass, soda-lime-silica (5) 109*h*.
Knudsen cell, of rare earth nitrides (5) 141*h*.
oxidative, of Cr_2O_3 and Cr by O atoms (1) 38*c*; of Cr_2O_3 in O, kinetics (1) 43*c*.
vacuum, of MgO, effect of porosity (1) 38*d*.
of YS (5) 147*a*.
Vermiculite, cation exchange, and oxidation, kinetic survey (5) 141*b*.
exchange sites in, properties (3) 91*c*.
expanded, beneficiation in electric field (9) 225*c*.
-mineral salt complexes, insoluble, preparation and properties (3) 89*e*.
products, by exfoliation, pulverization, and calcination, P (9) 226*c*.
Vibrations, atomic, and crystalline nucleation (1) 5*c*.
lattice, of alkali and alkaline earth metal sulfates (5) 140*b*.
optically active, of dolomite (5) 143*e*.
Viscometry, penetration, apparatus constant and penetration rate for (1) 31*j*.
Viscosity, of CaC_2, effect of SiO_2 and Fe_2O_3 (1) 37*j*.
of clay slurries, dispersed, controlling, P (9) 216*j*.
of fluids, instrument for measuring, P (5) 132*b*.
of glass, K_2O-SrO-SiO_2 system (9) 203*e*.
melts (5) 108*f*.
Na trisilicate, effect of H_2O (9) 201*e*.
Pb (5) 110*h*.
in range $10^{-10^{11}}$ (5) 105*c*.
silicate, B (9) 244*g*.
SiO_2-Na_2O-K_2O-Al_2O_3-B_2O_3-PbO system (9) 203*f*.
soda-lime, high-temp. (3) 55*e*.
of materials, with floating funnel (9) 223*e*.
phonon, in $SrTiO_3$ (1) 43*d*.
Vitreous materials, compounds, P (5) 128*j*.
Volatilization, of B_2O_3, in borosilicate glass (5) 105*f*.
during glassmelting (1) 13*d*.
of soda, from Na silicate melts, kinetics (7) 158*e*.
from soda-lime-silica, melts (7) 160*e*.
Voltage, thermo-, at surface of thin films, by scanning-laser-induced voltage (7) 176*e*.

Wastes, ash-slag, from electric power plants, as aluminate additive for clinker (5) 98*a*.
coal, and ash beneficiation, for Agloporite (5) 101*h*.
coal beneficiation, for ceramic wall tiles (5) 124*h*.
contaminated surfaces, of nuclear power plants, cleaning, P (1) 30*c*.
fuel, for cement additives (5) 102*i*.
industrial, disposal by deep well injection (3) 93*b*.
resource recovery and recycling, B (3) 96*h*.
materials, containing B and Cr, use in high-strength cement (7) 153*h*.
mineral, suspensions in water, treatment, P (7) 175*c*.
utilization (1) 48*h*.
nuclear, ceramic-, composite prepared by hot-pressing (5) 128*c*.
high level, in glass, fixation for disposal (7) 173*f*.
low level, chemical digestion, P (9) 220*j*.
radioactive, management (7) 174*a*.
petroleum, new hydrophobic additive from, for binders (5) 118*c*.
radioactive, crystal chemistry and phase formation (1) 29*f*.
solid, burn up in new incinerator equipment (9) 242*j*.
pyrolytic treatment, to form ceramic prills, P (9) 214*d*.
recovery of metals and glass from (1) 9*h*.
washer lime-sludge, usability for cement (9) 197*e*.
water, removal of F from, as fluorapatite (7) 175*a*.
treatment, magnetism in (9) 221*j*.
Water, adsorbed, effect on sintering CaF_2 (3) 86*g*.
adsorption, in borosilicate glass films (1) 13*e*.
anodic photooxidation, use of TiO_2 sintered bodies (3) 72*j*.
dissolved heavy, effect on internal friction of Li metaphosphate glass (1) 7*e*.
effect, on beta Al_2O_3 conductivity (9) 230*f*.
on coordination of Al ions in aluminosilicate glasses (9) 201*d*.
on viscosity and thermal expansion of Na trisilicate glass (9) 201*e*.
in glass, direct determination (7) 156*d*.
photosensitized electrolysis, use of n-type TiO_2 electrodes in (1) 27*h*.
Water *(continued)*
vapor, effect on oxidation of Si_3N_4 and SiC (3) 86*h*.
Waves, absorption, laser radiation, propagation in solid transparent dielectrics (3) 74*i*.
acoustic, surface, use in studying surface properties of ion-exchanged glass (7) 179*e*.
elastic, surface, on piezoelectric ceramic plates under bending stress (3) 75*g*.
-guide, birefringent, by sputtering Ta in O_2-N_2 mixtures (3) 59*j*.
glass fiber optical, by metal evaporation technique (3) 55*j*; glass optical, P (7) 161*j*.
indiffused, effects of thin film overlays (3) 73*g*.
optical, low-loss, preparation and properties (7) 159*f*; optical, linear elements, in-line coupling, (7) 162*e*; optical, in GaAs-AlGaAs epitaxial layers (7) 171*g*; optical, refractive index profiles, automatic analysis (9) 222*h*.
optical, P (3) 61*j*.
optical bundle, mixer for, P (3) 61*i*.
optical, glass fiber, laser drawing (5) 107*d*.
optical, with very low losses (5) 108*g*.
hypersonic, and spin, interactions in antiferromagnetic Mn-CO_3 (9) 233*c*.
magnetoelastic surface, in magnetic film-piezoelectric substrate configuration (9) 234*h*.
micro-, attenuation, P (9) 219*h*.
to dry wet granules (3) 81*e*.
phonon attenuation in Y Al garnet and Gd Ga garnet (9) 235*f*.
pressure shear, in vitreous SiO_2 (9) 238*c*.
radio, for determining underground karst forms (1) 33*b*.
for drying (3) 81*f*.
Rayleigh, harmonics and attenuation on crystalline quartz (9) 235*j*.
sound, in $LiNbO_3$, optical diffraction study (9) 236*c*.
spin, attenuation damping in antiferromagnetic substances (1) 35*d*.
relaxation processes in YIG (9) 233*d*.
stationary state in $MnCO_3$ (9) 239*g*.
surface, convolution, in materials with strain-dependent dielectric constant (5) 136*i*.
elastic and piezoelectric, guided by thin films (7) 181*a*.
propagation on piezoelectric ceramic (9) 218*a*.
surface electromagnetic, to measure material properties (7) 176*i*.
ultrasonic, effect on current relaxation time in pn junctions (1) 25*i*.
Weighing and weights, for ceramic bodies (3) 79*a*.
systems (3) 78*c*; (3) 79*b*.
Welding, enameled products (3) 54*i*.
Wetting, aluminosilicate refractories, by steels (5) 117*a*.
Ba hexaferrite, by molten metals (9) 218*j*.
compatibilities, and angles, of ceramics-liquid metals (1) 35*h*.
glass batch, detergents for (9) 199*c*.
of refractories, by C steel (3) 64*i*.
refractory oxides, by metallic and slag melts (1) 20*g*.
SiC, Si_3N_4, and C by Si and Si alloys (1) 5*c*.
of Si_3N_4, by liquid Si, atm effects (7) 179*h*.
Whiteware, acid-resistant, swelling in (3) 71*g*.
articles, aligned, separating, P (1) 24*h*.
P (1) 24*a*; P (5) 124*g*.
biomedical, carbonate materials as precursors for (9) 214*g*.
blue layers, light-permeable, P (1) 24*e*.
body, moisture expansion and mineralogical stability (5) 123*h*.
reformulation (7) 169*i*.
of various shapes from inorganic powders, P (7) 170*e*.
compositions, of clay and wollastonite (9) 215*f*.
fast-firing, and article from, P (7) 170*f*.
faucet, domestic ceramic disk, P (7) 170*e*.
fine ceramics, flatware, production line description (3) 71*h*.
fritting, and properties (1) 23*h*.
green bodies, dried, with organic binders, theoretical strength (7) 170*a*.
green structures, shaped, activated, system for rehydration or curing, P (9) 216*f*.
high-frequency, dense, of Al_2O_3 fired at 1420° (5) 123*c*.
honeycomb structure, P (5) 124*h*.
implant materials, bioglass-coated high-density Al_2O_3 for (1) 22*f*.
industry, characterization, key to improved processes (1) 22*i*.
material, vitrified, effect of Fe oxides in bloating (7) 169*j*.
pool overflow channel, P (5) 124*b*.
reinforced, with mullite single crystals (1) 22*g*.
sheets, by papermaking method (1) 23*c*.
sponging machine for, P (9) 216*b*.
surgical binder, or cement containing antibiotic, P (3) 72*g*.
thread guide, P (1) 24*i*.
work-centering device for, P (1) 24*j*.
workpieces, decoration, P (3) 72*e*.
Willemite, single crystals, growth by flux method (3) 85*i*.
Wire, Au, tailless wedge bonding to Pd-Ag cermets, P (7) 173*j*.
Wollastonite, effect, in mosaic tile body (3) 92*i*.
pseudo-, melting and subsolidus phase relations for (3) 89*g*.
synthesis, and use in ceramic bodies (1) 23*h*.
synthetic, and molded material from (1) 46*d*.
P (3) 83*i*; P (5) 135*d*.
Wurtzite, polytypes, in disordered 2H crystals (9) 242*d*.
Wustite, coulometric titration, solid-state, critical analysis (1) 27*j*.
solid, thermodynamic properties (7) 188*j*.
solubility in, of Al_2O_3, V_2O_3, and Cr_2O_3 (3) 91*j*.
thermal diffusivity (1) 47*g*.
Xenon, diffusion, in glasses and vitreous SiO_2 (7) 158*g*.
Xonotlite, molded, fibers as reinforcement for (5) 116*g*.
shaped, water durability, effect of CO_2 (7) 151*b*.
thermal transformation (3) 53*e*.
X rays, analysis, of Indian bentonites (1) 48*a*.
diffraction (9) 224*a*. of alpha-quartz in atmospheric dust (3) 79*i*.
closed form equations for, by interstratified clay systems (5) 135*j*.
of crystallization of chalcogenide glasses (1) 13*g*.
data, on substructure of CdTe films (1) 48*b*; data for Ca and Sr sulfate-chromate solid solutions (7) 186*f*.
of defects generated in Si single crystals by thermal oxidation (5) 147*i*.
detection limits of crystalline phases by (3) 85*f*.
for determination of quartz in SiO_2 bricks (3) 80*c*.
of glass system Na_2O-TiO_2-SiO_2, with Na^+ partially replaced by Ag^+ (1) 13*e*.
high-temp. unit, for thermosynthesis of Ca silicates (3) 79*f*.
intensities, effect of bending (5) 139*f*.
of lattice parameters of HfC phases (7) 185*a*.
of materials for cement (5) 102*c*.
of Mn-N phase diagram (9) 233*e*.
patterns of serpentine minerals (3) 89*j*.
for quantitative fabric analysis of Drammen clays (9) 238*f*.
single crystal studies of monoclinic⇌tetragonal transition in ZrO_2 (9) 236*f*.
of structure of ceramics materials (9) 224*a*.
for thermal expansion of MgO and $MgAl_2O_4$ (7) 176*g*.
diffractometry, for analysis of shales (1) 33*c*.
emission microprobe, analysis of red medieval stained glasses (1) 1*f*.
fluorescence, analysis of soda-lime glasses (3) 59*a*; analysis, correcting interelement effects in (3) 80*h*; analysis of carbonate- and silicate-containing materials (5) 132*j*; analysis of ground raw feeds and cements (7) 152*e*; analysis of Chilean portland cements (7) 153*i*; analysis of pollution samples, composition and particle size effects in (7) 176*i*; analysis, review (9) 222*h*.
background corrections in trace element analysis by (3) 80*d*.
to determine Th in optical components (3) 80*a*.
elimination of background variations by photoelectrons in (5) 131*h*.
Guinier camera, use in solid state reaction kinetics (9) 223*b*.
kinetic analysis (5) 131*b*.
microanalysis, of CuO-Fe_2O_3 ceramic coating on Al_2O_3 (1) 27*h*.
phase analysis, quantitative, of aluminous cements (7) 152*d*.
photoelectron, angular distributions, concentration profiles for irregular surfaces from (9) 222*b*.
studies of oxides and hydroxides of Co, Ni, and Cu (7) 189*a*.
powder diffraction, by Debye-Scherrer method, collection of particles for (9) 222*a*.
powder pattern, to identify minerals of kaolinite subgroup (5) 131*e*.
quantometers, for chemical analysis of ceramic ware (1) 33*h*.
study, of $BaGeO_3$ (3) 75*i*.
of beta-Ca_2SiO_4 single crystals at high temp. (3) 93*j*.
of chrysotile orientation in asbestos products (9) 242*e*.
of magnetic-field-induced crystallographic texture in FeS powder (1) 42*g*.
of Si_3N_4-Al_2O_3 system (7) 189*d*.
Xylene, separation, zeolitic adsorbent for, P (9) 226*d*.

Ytterbium, $YbFe_2O_4$, crystal structure (5) 136*h*.
Yb_2S_3, single crystals, synthesis and symmetry (9) 241*a*.
Yttrium, aluminate, Cr-rare-earth energy transfer in (7) 179*j*.
lattice, absorption spectra of Fe group ions in (9) 226*d*.
chromite, synthesis, kinetics (9) 234*g*.
monosulfide, vaporization, thermodynamics, and dissociation energy (5) 147*a*.
orthoaluminate, Czochralski growth (1) 36*d*.
oxide, ceramics, structure, effect of additives (3) 86*d*.
effect on hot-pressed Si_3N_4 (1) 17*i*.
electrical conductivity (5) 138*f*.
melting point in vacuum (7) 184*a*.
P (1) 34*i*.
reaction with Si_3N_4, comment and reply (3) 85*c*.
sintering (5) 145*g*.
solid and liquid phases, equilibria temp. between (9) 231*f*.
thermal emission, electrical conductivity, and Hall effect for defect study in (7) 188*e*.
-ZrO_2 pore-free ceramics, conductivity, effect of grain size (9) 230*i*.
oxyfluoride, polymorphism (9) 237*i*.
oxysulfide, Eu-activated, P (5) 112*g*.
polonide, crystal structure (5) 136*i*.
vanadate, magnetic phase transition in (1) 41*h*.
$YFeO_3$, antiferromagnetism in, effect of anisotropy (9) 230*f*.
crystals, domain structure and magnetic properties (5) 125*b*.
single crystal powders, magnetic properties (9) 234*e*.
YFe_3, magnetic properties (1) 41*h*.
$Y_3Al_3O_{12}$, impurity ion clusters in, classification and analysis (1) 36*a*.
$Y_3Fe_5O_{12}$, defects and electronic properties (7) 180*c*.
in ZrO_2 refractories, photometric determination (3) 66*f*.

Zeolites, A, synthesis, molecular sieve (3) 83*e*; synthesis, molecular sieve (9) 225*j*.
and X, properties (7) 185*c*.

Zeolites *(continued)*
adsorbent, for xylene separation, P (9) 226*d*.
aluminosilicate, crystalline, P (7) 178*h*.
crystalline, faujasitic-type, P (7) 178*h*.
hydrophobic properties (7) 182*f*.
molecular sieve, gas-laden, for porous shaped inorganic structures, P (7) 167*j*.
natural, properties, occurrences, and uses (9) 225*g*.
P (5) 135*d*.
Pt, catalytic properties (9) 225*e*.
Zinc, diffusion, in InP (3) 73*a*.
dissolution, in alkaline solution, effect of silicate ion (9) 230*f*.
lignosulfonate, stabilizing binder solution, for MgO refractory forming mixtures, P (3) 70*f*.
oxide, Brillouin scattering from acoustoelectric domains in (9) 216*i*.
crystals, ESR of Ga donors in (1) 38*e*.
effect on crawling of glazes (1) 23*e*; effect on Ti powder enamels for cast iron (9) 198*c*.
electrical conductivity, dependence on degree of sintering (3) 85*i*.
exoelectron emission (5) 139*j*.
low-temp. electrical properties (7) 183*d*.
nonlinear sound amplification in (7) 184*a*.
O adsorption on, thermoelectric power variation during (3) 75*d*; O diffusion in, study by single-spectrum proton activation (7) 179*g*.
Pb removal from, effect of temp. (3) 82*e*.
polycrystalline, semiconductor properties (5) 138*i*.
precipitation in CCl_4 (9) 241*i*.
semiconducting, apparatus for studying electric field effect on (1) 35*b*.
surface, interaction with O, effect of Li (7) 182*h*.
thin flim, by thermal decomposition of Zn naphthenate (5) 126*a*; thin films, effect of nucleating surface (7) 171*e*.
selenide, crack propagation in, effect of microstructure (1) 40*g*.
discontinuous growth modes, on Ge surfaces (1) 25*f*.
elastic constants (3) 86*j*.
epitaxial growth on sapphire substrates (5) 125*h*.
oxidation, in air (5) 143*g*.
p-, and p-ZnTe single crystals, preparation conditions (1) 35*e*.
single crystals, exciton spectra, effect of Zn and Se heat treatment (1) 40*j*; single crystals, recharging processes of Cr ions in (1) 45*c*.
stress-optic coeff. (5) 110*h*.
solubility, in InAs (5) 145*e*.
sulfide, activation (3) 72*i*.
crystals, optical absorption and lattice defects induced by neutron irradiation and heat treatment in (1) 42*h*.
thin layers, photoconduction and photovoltaic effect in (1) 26*j*.
:Mn electroluminescence decay, effect of Mn concentration (5) 138*a*.
tungstate, Cr^{3+} in, EPR line shape (5) 136*h*.
heat capacity (7) 188*d*.
$ZnFe_2O_4$, heat capacity (7) 182*j*.
$ZnNi(Co)Fe_2O_4$, sintering process, effect of lattice orientation in (9) 230*i*.
$ZnSiP_2$, refractive index and double refraction (9) 238*d*.
Zn_2SnO_4, sintering, effect of oxide additives (5) 138*h*.
$Zn_3(PO_4)_2.4H_2O$, thermographic study (9) 241*g*.
Zinnwaldite, coincidence boundaries in, and phlogopite (5) 136*b*.
Zircon, bodies, sintering, effect of TiO_2-SiO_2 and TiO_2-Al_2O_3 (5) 138*e*.
concentrate, identification and removal of strain from (9) 225*d*.
low grade, beneficiation (9) 225*d*.
crystallization, in glazes (1) 23*a*.
dry grinding, in mfg. of dense products (5) 116*g*.
fluoride, charge, phase transformations during (9) 237*a*.
Gibbs energies of formation (7) 182*h*.
materials, mortar for laying (1) 18*i*.
metamict, isothermal and polythermal recrystallization (1) 40*j*.
reaction, with CsOH (3) 91*e*.
and sintering with TiO_2, effects of grain size (7) 181*f*.
supply, and demand, mid-1970's imbalance in (1) 34*h*.
synthetic, thermoluminescence (5) 146*g*.
Zirconium, carbide, C distribution in, during creep testing (3) 84*i*.
coatings, deposition on W fibers (5) 103*c*.
densification and recrystallization characteristics (1) 16*i*.
high-temp. oxidation (1) 40*d*.
lattice period, variation in (5) 147*b*.
oxidation after impact of shock waves (1) 43*c*; oxidation resistance in air (3) 68*f*.
powders, abrasive properties (1) 16*c*.
reaction with Re (3) 91*e*.
thermionic emission characteristics (7) 188*g*.
Young's modulus, effect of porosity (9) 230*d*.
diboride, electrolytic preparation from oxides and mineral concentrates (1) 34*f*.
preparation by carbothermic reduction of Zr and B oxides (1) 18*e*.
strength after cyclic loading or heating (1) 46*b*.
Zirconium dioxide *(continued)*
dioxide, analysis by X-ray fluorescence spectrometry (1) 31*i*.
ceramics, heat-resistant (1) 18*b*.
coating with, P (7) 154*j*.
composite material, P (7) 154*a*.
crystallites, from silicate ores, P (9) 226*d*.
hot-pressing (1) 18*c*.
impedance, microstructure, and composition (9) 228*f*.
from Indian zircon, $CaCO_3$-$ZrSiO_4$ system (3) 83*a*; from Indian zircon (9) 225*j*.
molten microspheres, composition and structure (9) 208*b*.
monoclinic⇌tetragonal transition in (9) 236*f*.
monocrystals, P (5) 128*f*.
precipitation in, comments and reply (5) 136*b*.
probes, for flue gas analysis problems (1) 33*i*.
reaction with SiO_2 (1) 19*i*; reaction with C at high temp. (3) 89*f*.
reactions with PbO and TiO_2 (9) 238*a*.
sintered bodies, P (5) 122*j*; sintered bodies, P (7) 168*h*.
sintering behavior, effect of CaO (3) 65*j*.
sorption of W(VI) ions (9) 239*a*.
stabilization under high pressure (5) 145*d*.
stabilized, P (1) 22*j*; stabilized cubic, P (5) 122*a*; stabilized, P (9) 226*c*.
suspensions, paraffin stabilized, properties (1) 17*g*.
tetragonal, precipitation in cubic ZrO_2 for strengthening mechanism (9) 227*g*.
treatment, P (5) 129*d*.
with Y_2O_3 sintering (3) 91*e*.
-Pt interface reactions (3) 93*a*.
molybdate, properties (3) 85*e*.
nitride, films and whiskers, by chemical vapor deposition (3) 88*e*.
oxide, carbonated hydrated, P (9) 226*g*.
in Pb zirconate titanates, differential spectrophotometry (9) 222*g*.
silicate, nonmetamict, elastic constants (7) 181*i*.
water-soluble, compounds, for porous inorganic bodies, P (3) 70*a*.
$Zr(Fe_{1-x}Co_x)_2$, transition from weak ferromagnetism to paramagnetism (5) 146*i*.
Zone melting, crucible-free, of semiconductor crystal rods, P (3) 76*g*; of semiconductor crystal rods, apparatus for, P (9) 219*a*.
P (5) 128*a*.

INDEX GUIDE

"See" and "See also" references indicate categories under which related or similar information may be indexed. The list is general and categories will not necessarily appear in the index every year.

Abrading apparatus. See *Grinding apparatus.*
Abrasives. See also *Carbides; Diamond; Grinding apparatus; Polishing apparatus; Silicon, carbide.*
Acids. See also specific types.
Acoustics. See also *Insulation, acoustical; Sound.*
Adherence. See *Enamels.*
Adsorption. See also *Diffusion; Sorption.*
Aircraft ceramics. See *Cermets; Spacecraft.*
Alkaline earths. See also specific types.
Alkalis. See also specific types.
Alumina. See *Aluminum oxide.*
Aluminum oxide. See also *Abrasives; Boehmite; Refractories.*
Analysis. See also *Chromatography; Colorimetry; Electron diffraction; Microscopy; Particles; Photometry; Quality control; Screens and Sieves; Spectrography; Spectrometry; Spectrophotometry; Spectroscopy; Testing; Thermal analysis; Thermodynamics; Thermogravimetry; Titration; X rays.*
Anions. See *Ions.*
Anisotropy. See also *Crystals.*
Anodes. See also *Electrodes.*
Antiferromagnetism. See *Ferromagnetism.*
Apparatus. See *Instruments; Machinery and equipment; Testing;* and specific types.
Aquasols. See *Colloids.*
Art and artware. See also *Archeology; Decoration; Design; Majolica; Pottery; Tile.*
Attrition. See *Crushing; Grinding.*
Augers. See *Extrusion.*

Balances. See *Weighing and weights.*
Ball mills. See *Mills.*
Barite. See *Barium, sulfate.*
Barium, titanate. See also *Dielectrics.*
Base exchange. See *Ions.*
Bending. See *Deformation.*
Beneficiation. See also *Classification; Classifiers; Crushing; Grinding; Filters; Flotation; Screens and sieves; Separation; Separators.*
Beryllia. See *Beryllium, oxide.*
Biotite. See *Mica.*
Birefringence. See *Refraction.*
Blending. See *Mixing; Mixers.*
Bodies, ceramic. See also *Dielectrics.*
Bonding. See also *Seals and sealing.*
Brazing. See *Soldering.*
Brick. See also *Masonry; Refractories; Structural materials.*
Brick, freezing or frost resistance. See *Frost resistance.*
Brick industry. See also *Structural clay industry.*
Brickmaking equipment. See also *Dryers; Kilns; Materials handling; Presses.*
Building materials. See also *Aggregates; Brick; Enamels; Insulation, thermal; Structural clay products; Structural materials.*
Bulbs. See *Glass.*
Burners. See also *Flames.*
Burning. See also *Calcination; Combustion; Firing; Lime.*

Calcia. See *Calcium, oxide.*
Calcination. See also *Firing.*
Calcium, oxide. See also *Lime.*
Cameras. See *Photography.*
Carbides. See also specific types.
Carbon. See also *Graphite.*
Carbon, fibers. See *Fibers.*
Casting. See also *Molding; Molds; Refractories; Slip casting.*
Cast iron. See *Enameling metals; Iron.*
Cathode-ray screens. See *Screens, fluorescent.*
Cathode-ray tubes. See *Tubes.*
Cathodoluminescence. See *Luminescence.*
Cations. See *Ions.*
Celestine. See *Strontium, sulfate.*
Cells, fuel. See *Fuel cells.*
Cements. See also *Concrete; Kilns; Mills; Plasters; Mortars; Refractories.*
Ceramic materials. See *Bodies, ceramic; Materials, raw;* and specific types.
Ceramic-metal systems. See also *Enamels.*
Ceria. See *Cerium, oxide.*
Cermets. See also *Composite materials.*
Checker-brick. See *Refractories.*
Chemical analysis. See *Analysis.*
Chemistry. See also *Electrochemistry; Geochemistry; Thermodynamics.*
China clay. See *Kaolin.*
Chinaware. See *Art and artware; Dinnerware; Porcelain.*
Chrome. See *Chromium; Refractories.*
Chromia. See *Chromium, oxide.*
Chromite. See *Refractories.*
Classification. See also *Separation; Separators.*
Classifiers. See *Beneficiation.*
Clays. See also specific types.
Clinkers. See *Cement; Dolomite; Forsterite; Magnesite.*
Coagulation. See *Agglomeration.*
Coal. See *Fuels.*
Coatings. See also *Electrostatic processes; Enamels; Glazes; Films; Resins.*
Color. See also *Pigments; Stains.*
Color, measurement. See *Colorimetry.*
Columbium. See *Niobium.*
Combustion. See also *Burners; Firing; Flames; Furnaces; Heat; Kilns.*
Comminution. See *Crushing; Grinding.*
Compaction. See also *Pressing.*
Concretes. See also *Cements; Masonry; Mortars; Refractories.*
Condensers. See *Capacitors.*
Conductors, electrical. See also *Semiconductors; Superconductors.*
Containers. See *Glass.*
Controls. See also *Feeding apparatus; Instrumentation; Temperature.*
Conveyors. See also *Materials handling.*
Corundum. See also *Aluminum oxide; Refractories.*
Cracks. See also *Defects; Fracture.*
Crazing. See *Glazes.*
Creep. See also *Fatigue; Plasticity.*
Cristobalite. See also *Silicon dioxide.*
Crucibles. See *Refractories.*
Crushing. See also *Crushing apparatus; Mills.*
Crushing apparatus. See also *Mills.*
Crystallites. See also *Crystals, structure.*
Crystallization. See also *Crystals, growth.*
Crystallization, of glass. See *Glass.*
Crystals. See also specific types.
Cutting tools. See *Tools.*
Cyclones. See *Separators.*

Decoration. See also *Art and artware; Color; Engobes; Glazes.*
Defects. See also *Cracks; Crystals; Enameling; Enamels; Fracture; Glass; Structure.*
Deflocculation. See *Dispersion.*
Dehydroxylation. See *Decomposition, thermal.*
Design. See also *Art and artware; Decoration.*
Detectors. See also *Tubes, electron.*
Diamonds. See also *Grinding apparatus.*
Diatomaceous earth, or Diatomite. See *Kieselguhr.*
Dicalcium silicate. See *Calcium, di-.*
Dielectrics. See also *Ferrites; Ferroelectricity; Ferroelectric materials; Glass; Porcelain, electrical; Steatite; Titanates; Whiteware.*
Dies. See also *Extrusion.*
Differential thermal analysis. See *Thermal analysis.*
Diffraction. See also *Electron diffraction; Neutrons; Optical properties; X rays.*
Dilatometers. See also *Expansion.*
Dinnerware. See also *Art and artware; Pottery; Whiteware.*
Diodes. See also *Tubes, electron; Rectifiers.*
Dislocations. See also *Creep; Defects.*
Display devices. See also *Electronic equipment.*
Dissolution. See *Solutions.*
Dolomite. See also *Refractories.*
Dolomite, plaster. See *Plasters.*
Domains. See *Ferroelectricity; Ferroelectric materials; Ferromagnetism; Ferromagnetic materials; Magnetic properties.*
Doping. See *Additives.*
Dry pressing. See *Pressing.*
Dust. See also *Pollution, air; Particles; Powders.*

Elastomers. See *Elastic materials.*
Electric resistors. See *Resistors, electrical.*
Electrical ceramics. See *Electronics.*
Electrical conductance. See *Resistance, electrical.*
Electrical conductivity. See *Conductivity, electrical.*
Electroceramics. See *Electronics.*
Electrochemistry. See also *Corrosion.*
Electrodes. See also *Heating elements.*
Electrodialysis. See *Dialysis.*
Electroluminescence. See *Luminescence.*
Electroluminescent materials. See *Luminescent materials.*
Electromagnets. See *Magnets.*
Electromechanical properties. See *Mechanical properties.*
Electron tubes. See *Tubes.*
Electronics. See also *Electronic equipment.*
Electrophotography. See *Photography.*
Electrophysical properties. See *Physical properties.*
Elements, heating. See *Heating elements.*
Elutriation. See *Beneficiation.*
Enameled ware, panels. See *Building materials.*
Enameling apparatus. See *Electrostatic processes; Furnaces; Spraying.*
Enameling metals, pickling. See *Pickling.*
Enamels. See also *Coatings.*
Energy. See also *Enthalpy; Entropy; Kinetics.*
Entropy. See also *Thermodynamics.*
Epitaxy. See *Crystallization.*
Equilibrium studies. See *Phase equilibria.*
Equipment. See *Machinery and equipment;* specific types.
Expansion. See also *Dilatometers.*

Ferric, Ferrous compounds. See *Iron.*
Ferric oxide. See *Iron, -ic oxide.*
Ferroelectric materials. See also *Barium, titanate; Dielectrics; Ferroelectricity.*
Ferroelectricity. See also *Barium, titanate; Ferroelectricity.*
Ferromagnetic materials. See also *Magnetic materials.*
Fibers. See also *Composites; Glassmaking equipment.*
Filaments. See also *Fibers.*
Films. See also *Coatings;* specific types.
Fine ceramics. See *Whiteware.*
Firebrick. See *Refractories.*
Fireclay. See *Refractories.*
Firing. See also *Burners; Calcination; Combustion; Flames; Furnaces; Kilns; Ovens; Sintering.*
Flames. See also *Burners; Firing.*
Flaws. See *Defects.*
Fluids. See *Liquids.*
Fluorapatite. See *Apatite, fluor-.*
Fluxes, welding. See *Welding.*
Fly ash. See *Ash, fly.*
Forsterite. See also *Refractories.*
Fracture. See also *Cracks.*
Freezing and thawing. See *Frost resistance.*
Fuels. See also *Ash, fly; Combustion; Gases; Oil.*
Furnaces. See also *Burners; Fuels; Kilns; Ovens; Refractories.*

Galvanomagnetic properties. See *Magnetic properties.*
Gels. See *Colloids.*
Germania. See *Germanium, dioxide.*
Glass. See also *Art and artware; Furnaces; Glass-ceramics; Glass industry; Glassmaking equipment.*
Glass, ceramics. See *Glass-ceramics.*
Glass, decoration. See *Decoration.*
Glass, fibers. See *Fibers.*
Glass, molds. See *Molds.*
Glass, seals. See *Seals and sealing.*
Glass, semicrystalline. See *Glass-ceramics.*
Glass, sheet. See also *Glass: flat, plate, window.*
Glass, sitalls. See *Glass-ceramics.*
Glass, wool. See *Fibers, glass.*
Glassmaking, furnaces. See *Furnaces.*
Glazes. See also *Decoration.*
Glossaries. See *Nomenclature.*
Grading machines. See *Machinery and equipment.*
Grains. See *Particles.*
Granular materials. See also *Powders.*
Granulation. See *Crushing; Grinding.*
Granulometry. See *Particles, size.*
Graphite. See also *Carbon; Composites; Refractories.*
Grinding (comminution). See also *Crushing apparatus; Mills.*
Grinding (material removal). See also *Abrasives; Diamonds; Polishing.*
Grinding apparatus. See also *Abrasives.*
Guns. See *Electrostatic processes; Spraying apparatus.*
Gypsum. See also *Plasters.*

Hafnia. See *Hafnium, oxide.*
Health. See also *Air, pollution; Dusts; Safety; Silicosis.*
Heat. See also *Conductivity, thermal; Enthalpy; Entropy; Temperature.*
Heat, conductivity. See *Conductivity, thermal.*
Heaters. See also *Thermoelectricity.*
Heating elements. See also *Electrodes; Thermoelectricity.*
Heavy clay products. See *Structural clay products.*
Hematite. See also *Iron, -ic oxide.*
Hot tops. See *Refractories.*
Humidity. See also *Moisture; Water.*
Hydrocyclones. See *Separators.*

Illite. See also *Clays.*
Index of refraction. See *Refractive index.*
Infrared techniques. See also *Absorption; Radiation; Spectra.*
Inhomogeneity. See *Heterogeneity.*
Inspection. See *Quality control.*
Instrumentation. See *Controls.*
Instruments. See also specific types.
Instability. See *Stability.*
Insulation, electrical. See also *Dielectrics; Glass; Porcelain.*
Insulation, thermal. See also *Fibers, glass; Mineral wool; Refractories.*
Ions. See also specific types.
Iron. See also *Enameling metals; Steels.*
Irradiation. See also *Radiation;* specific types.
Isotopes. See also *Radioactive tracers.*

Jewelry. See *Art and artware.*
Joints. See also *Seals and sealing.*

Kaolinite. See also *Kaolin.*
Kilns. See also *Burners; Furnaces; Ovens.*

Ladles. See *Refractories.*
Lamps. See also *Glass; Glassmaking equipment.*
Lanthanons. See *Rare earths.*
Lasers. See also *Masers.*
Lattice. See *Crystals.*
Lead. See also *Glass; Glazes; Health.*
Lehrs. See *Glassmaking equipment.*
Lenses. See *Glass, optical.*
Lepidolite. See *Mica.*
Lime. See also *Calcium, oxide; Glass.*
Linings. See *Refractories.*
Lithia. See *Lithium, oxide.*
Luminophors. See *Phosphors.*

Machinery and equipment. See also *Materials handling;* specific types.
Magnesia. See *Magnesium, oxide; Refractories.*
Magnesite. See also *Refractories.*
Magnetic materials. See also *Ferrites; Ferromagnetic materials; Ferromagnetism.*
Magnetic properties. See also *Anisotropy; Resonance.*
Magnetoresistance. See *Resistivity, electrical.*
Masers. See also *Lasers.*
Materials handling. See also *Conveyors; Feeding apparatus; Machinery and equipment.*
Meetings. See *Conferences.*
Metalizing. See *Coatings.*
Metalloceramic compositions. See *Cermets.*
Metals. See also *Enameling metals; Rare earths; Refractories.*
Metaphosphates. See *Phosphates.*
Mica. See also *Refractories; Vermiculite.*
Microhardness. See *Hardness.*
Microscopy. See also *Structure, micro-.*
Microstructure. See *Structure, micro-.*
Microwaves. See *Waves, micro-.*
Milling. See also *Crushing; Grinding.*
Mills. See also *Crushing apparatus; Grinding apparatus.*
Mineral fibers. See *Mineral wool.*
Mineral wool. See also *Fibers, glass.*
Mineralizers. See also *Fluxes.*
Minerals. See also *Materials, raw; Rocks;* specific types.
Missiles. See *Spacecraft.*
Modulus of elasticity. See *Elasticity.*
Modulus of rupture. See *Rupture.*
Moisture. See also *Humidity; Steam; Water.*
Molds. See *Slip casting; Slips.*
Mortars. See also *Cements; Concretes.*
Mullite. See also *Refractories.*
Muscovite. See *Mica.*

Nose cones. See *Spacecraft.*
Nozzles. See *Refractories; Spacecraft.*

Opacification. See *Enamels; Glass; Glazes.*
Opacifiers. See *Additives.*
Orthopyroxenes. See *Pyroxenes, ortho-.*
Orthosilicates. See *Silicates, ortho-.*
Organic compounds. See also specific types.
Ovens. See also *Furnaces; Kilns.*
Oxides. See *Rare earths;* specific types.

Pallets. See *Materials handling.*
Panels. See *Building materials; Glass.*
Particles. See also *Colloids; Permeability; Porosity.*
Permittivity. See *Dielectric properties.*
pH. See *Hydrogen ion concentration.*
Phase diagrams. See *Phase equilibria.*
Phase transformations. See *Phase equilibria.*
Phase transitions. See *Phase equilibria.*
Phlogopite. See *Mica.*
Phosphates. See also *Glass;* specific types.
Photoconductors. See *Conductors, electrical.*
Photoelasticity. See *Elasticity.*
Photoelectric cells. See *Cells.*
Photometers. See also *Spectrophotometers.*
Physical chemistry. See *Chemistry.*
Pigments. See also *Color; Stains.*
Pipe. See also *Tile.*
Plaster of Paris. See *Gypsum; Plasters.*
Plasters, molds. See *Molds.*
Plating. See *Coatings.*
Polishing. See also *Abrasives; Diamonds; Lapping.*
Polishing apparatus. See also *Abrasives; Diamonds.*
Polyelectrolytes. See *Electrolytes.*
Polyphosphates. See *Phosphates.*
Porcelain, art. See *Art and artware.*
Pores. See also *Porosity.*
Porosity. See also *Permeability.*
Porous materials. See also *Cements; Concretes; Insulation, thermal.*
Portland cement. See *Cements, portland.*
Potash feldspar. See *Feldspar.*
Potassium. See also *Alkalis.*
Potentiometers. See *Resistors, electrical.*
Potters. See *Artists.*
Pottery. See also *Archeology; Art and artware; Bodies, ceramic; Design; Dinnerware; Earthenware; Stoneware; Whiteware.*
Potterymaking equipment. See also *Dryers; Kiln furniture; Kilns; Materials handling; Molds.*
Powders. See also *Granular materials;* specific types.
Power. See also *Energy.*
Pozzolans. See *Cements; Mortars.*
Pressure, vapor. See *Vapor pressure.*
Pulverizing. See *Crushing and grinding.*
Pulverulent materials. See *Powders.*
Pyristors. See *Temperature measuring instruments.*
Pyrometers; Pyrometry. See *Temperature measuring instruments.*
PLZT. See *Lead, PLZT.*

Quartz. See also *Glass; Refractories; Silicon, dioxide.*
Quicklime. See *Lime.*

Radioactive materials. See *Isotopes; Wastes.*
Radioactive tracers. See *Isotopes.*
Radioisotopes. See *Isotopes.*
Rare earths (lanthanons). See also specific types.
Raw materials. See *Cements; Materials; Sands; Rocks.*
Reagents. See specific types.
Recrystallization. See *Crystallization.*
Recuperators. See *Furnaces; Kilns; Refractories.*
Reflectance. See *Reflection.*
Reflectivity. See *Reflection.*
Refractivity. See *Refraction.*
Refractories. See also *Insulation, thermal; Kiln furniture; Silicon, carbide; Spacecraft.*
Refractories, brick. See also *acid, basic,* and specific types under *Refractories.*
Refractories, cement. See also *Refractories, blast-furnace.*
Refractories, chrome-magnesite. See also *Refractories, magnesite-chrome.*
Refractories, coatings. See *Coatings.*
Refractories, concrete. See *Concretes.*
Refractories, electrocast. See *Refractories, fused cast.*
Refractories, magnesite. See also *Refractories, chrome-magnesite.*
Regenerators. See *Refractories.*
Resistance, electrical. See also *Conductivity, electrical; Electrical properties.*
Retardants. See also *Additives.*
Rock wool. See *Mineral wool.*
Rockets. See *Spacecraft.*
Rocks. See also *Phosphates; Silicates.*
Roughness. See *Surface.*
Ruby. See *Garnets; Lasers.*
Rutile. See also *Titanium, dioxide.*

Saggers. See *Kiln furniture.*
Sanidine. See *Feldspar.*
Sapphire. See also *Aluminum oxide.*
Schools. See *Education.*
Screen process printing. See *Decoration.*
Sculpture. See *Art and artware.*
Seals and sealing. See also *Bonding; Soldering.*
Separation. See also *Beneficiation; Classification; Flotation.*
Separation, electrostatic. See *Electrostatic processes.*
Setting. See *Binders.*
Settling. See *Sedimentation.*
Sewer pipes. See *Pipe.*
Sieves. See *Screens and sieves.*
Silica. See *Silicon dioxide.*
Silicon, carbide. See also *Refractories.*
Silicon dioxide. See also *Coesite; Colloids; Cristobalite; Glass; Quartz; Quartzite; Refractories; Sands.*
Sillimanite. See also *Refractories.*
Silvering. See *Glass.*
Single crystals. See *Crystals;* specific types.
Slaking. See *Lime, hydration.*
Slips. See also *Suspensions.*
Smelting. See *Metallurgy.*
Soapstone. See *Talc.*
Soda or Soda ash. See *Sodium, carbonate.*
Sodium. See also *Alkalis.*
Solar batteries or Solar cells. See *Cells, photovoltaic.*
Solar furnaces. See *Furnaces.*
Soldering. See also *Seals and sealing.*
Solid solutions. See *Solutions, solid.*
Sols. See *Colloids.*
Solutions, solid. See also *Phase equilibria.*
Sorel cement. See *Cements, magnesium oxychloride.*
Sorption. See also *Absorption; Adsorption.*
Spalling. See *Refractories.*
Specific gravity. See *Density.*
Specific heat. See *Heat, specific.*
Specific surface. See *Surface.*
Spectra. See also *Optical properties.*
Spectrophotometry. See also *Photometry.*
Spinel. See also *Refractories;* specific types.
Spraying. See also *Atomization.*
Spraying, electrostatic. See *Electrostatic processes.*
Stains. See also *Color; Pigments.*
Stannic, Stannous. See *Tin.*
Steatite. See also *Talc.*
Steels. See also *Enameling metals; Iron.*
Stones. See also *Rocks.*
Structural clay products. See also *Brick; Tile.*
Structural materials. See *Aggregates; Brick, Building materials; Cements; Concretes; Enameled ware; Glass; Insulation, thermal; Masonry; Structural clay products.*
Structure, micro-. See also *Particles, size; Porosity.*
Supersonics. See *Sonics.*
Suspensions. See also *Slips.*
Systems. See also *Phase equilibria.*

Tableware. See *Dinnerware.*
Talc. See also *Steatite.*
Tanks. See *Furnaces, glass.*
Television screens. See *Screens (fluorescent).*
Television tubes. See *Tubes.*
Tempering, of glass. See *Glass.*
Terminology. See *Nomenclature.*
Testing. See also *Analysis;* specific types.
Thermal conductivity. See *Conductivity, thermal.*
Thermal decomposition. See *Decomposition.*
Thermal expansion. See *Expansion.*
Thermal shock resistance. See *Shock resistance, thermal.*
Thermistors. See *Resistors, electrical.*
Thermochemistry. See *Thermodynamics.*
Thermocouples. See *Temperature measuring instruments.*
Thermoelectrical properties. See *Electrical properties.*
Thermogravimetry. See *Thermal analysis, gravimetric.*
Thermoluminescence. See *Luminescence.*
Thermomechanical properties. See *Mechanical properties.*
Thermometers. See *Temperature measuring instruments.*
Thermophysical properties. See *Physical properties.*
Thin sections. See *Microscopy.*
Thoria. See *Thorium, dioxide.*
Thyristors. See *Transistors.*
Tile. See also *Pipe.*
Titanates. See also *Dielectrics;* specific types.
Titania. See *Titanium, dioxide.*
Titanium, carbide. See also *Cermets.*
Titanium, dioxide, pigments. See *Pigments.*
Titration. See also *Analysis.*
Tools. See also *Drills.*
Tools, cutting. See also *Abrasives.*
Tools, grinding. See *Grinding apparatus.*
Trace elements. See *Elements.*
Tracers. See *Radioactive tracers.*
Transfers. See *Decoration.*
Transport processes. See also *Diffusion; Ions; Kinetics; Resistivity, electrical; Viscosity.*
Tricalcium. See *Calcium, tri-.*
Trituration. See *Crushing; Grinding.*
Tuyeres. See *Refractories.*
Twinning, of crystals. See *Crystals.*

Ultrasonics. See also *Sonics.*
Urania. See *Uranium, dioxide.*

Vacuum tubes. See *Tubes.*
Vapors. See also *Gases; Water.*
Varactors. See *Diodes.*
Varistors. See *Resistors, electrical.*
Viscosity. See also *Density; Friction, internal; Solutions.*

Water. See also *Humidity; Hydration; Moisture; Steam; Vapors.*
Water glass. See *Sodium, silicate.*
Weighing and weights. See also *Thermogravimetry.*
Welding, electrodes. See *Electrodes.*
Whiskers. See *Crystals;* specific types.
Whiteware. See also *Art and artware; Bodies, ceramic; Dielectrics; Dinnerware; Heating elements; Insulators, electrical; Porcelain; Pottery; Tile.*
Windows. See *Glass.*
Windshields. See *Glass.*
Wire, welding. See *Welding.*

Young's modulus. See *Elasticity.*
Ytterbia. See *Ytterbium, oxide.*
Yttria. See *Yttrium, oxide.*

Zircon. See also *Refractories; Zirconium, silicate.*
Zirconia. See *Zirconium, dioxide.*
Zirconium, silicate. See also *Zircon.*

CERAMIC ABSTRACTS

1976

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Historical Data on The American Ceramic Society

Year	Meeting Place	President Installed	Vice President
1899	Columbus, Ohio	H. A. Wheeler (gen)	Ernest Mayer
1900	Detroit, Mich.	Karl Langenbeck (gen)	C. F. Binns
1901	Old Point Comfort	C. F. Binns (art)	Ernest Mayer
1902	Cleveland, Ohio	Ernest Mayer (W)	F. W. Walker, Sr.
1903	Boston, Mass.	E. C. Stover (W)	Heinrich Ries
1904	Cincinnati, Ohio	F. W. Walker, Sr. (W)	A. V. Bleininger
1905	Birmingham, Ala.	W. D. Gates (terra cotta)	Ellis Lovejoy
1906	Philadelphia, Pa.	W. D. Richardson (S)	Samuel Geijsbeek
1907	St. Louis, Mo.	S. G. Burt (art)	R. C. Purdy
1908	Columbus, Ohio	A. V. Bleininger (W)	Charles Weelans
1909	Rochester, N. Y.	R. C. Purdy (gen)	A. S. Watts
1910	Pittsburgh, Pa.	Heinrich Ries (gen)	R. R. Hice
1911	Trenton, N. J.	Charles Weelans (W)	L. E. Barringer
1912	Chicago, Ill.	A. S. Watts (gen)	C. W. Parmelee
1913	Washington, D. C.	Ellis Lovejoy (S)	A. F. Hottinger
1914	Wheeling, W. Va.	C. W. Parmelee (gen)	D. T. Farnham
1915	Detroit, Mich.	R. R. Hice (S)	R. T. Stull
1916	Cleveland, Ohio	L. E. Barringer (W)	F. K. Pence
1917	New York, N. Y.	G. H. Brown (gen)	C. E. Jackson
1918	Indianapolis, Ind.	H. F. Staley (C)	A. F. Greaves-Walker
1919	Pittsburgh, Pa.	R. T. Stull (S)	R. H. Minton
1920	Philadelphia, Pa.	R. H. Minton (W)	E. T. Montgomery
1921	Columbus, Ohio	F. K. Pence (W)	F. B. Ortman
1922	St. Louis, Mo.	F. H. Riddle (W)	E. Ward Tillotson
1923	Pittsburgh, Pa.	A. F. Greaves-Walker (R)	R. D. Landrum
1924	Atlantic City, N. J.	R. D. Landrum (C)	R. M. Howe and August Staudt
1925	Columbus, Ohio	E. Ward Tillotson (G)	F. H. Rhead
1926	Atlanta, Ga.	R. L. Clare (terra cotta)	B. Mifflin Hood
1927	Detroit, Mich.	B. Mifflin Hood (S)	M. C. Booze
1928	Atlantic City, N. J.	M. C. Booze (R)	R. R. Danielson
1929	Chicago, Ill.	G. A. Bole (gen)	F. A. Harvey
1930	Toronto, Canada	Edward Orton, Jr. (gen)	P. E. Cox
1931	Cleveland, Ohio	E. V. Eskesen (terra cotta)	Alexander Silverman
1932	Washington, D. C.	E. P. Poste (C)	W. Keith McAfee
1933	Pittsburgh, Pa.	J. C. Hostetter (G)	L. J. Trostel, Sr.
1934	Cincinnati, Ohio	W. Keith McAfee (W)	J. M. McKinley
1935	Buffalo, N. Y.	J. M. McKinley (R)	F. C. Flint
1936	Columbus, Ohio	F. C. Flint (G)	R. B. Sosman
1937	New York, N. Y.	R. B. Sosman (R)	V. V. Kelsey
1938	New Orleans, La.	V. V. Kelsey (M)	A. I. Andrews
1939	Chicago, Ill.	A. I. Andrews (C)	J. L. Carruthers
1940	Toronto, Canada	J. L. Carruthers (terra cotta)	J. T. Littleton
1941	Baltimore, Md.	J. T. Littleton (G)	P. D. Helser
1942	Cincinnati, Ohio	L. J. Trostel, Sr. (R)	M. E. Holmes
1943	Pittsburgh, Pa.	C. E. Bales (R)	E. H. Fritz
1944	Pittsburgh, Pa.	E. H. Fritz (W)	C. Forrest Tefft
1945	Buffalo, N. Y.	C. Forrest Tefft (S)	J. E. Hansen
1946	Buffalo, N. Y.	J. E. Hansen (C)	J. D. Sullivan
1947	Atlantic City, N. J.	J. D. Sullivan (R)	J. W. Whittemore
1948	Chicago, Ill.	J. W. Whittemore (gen)	H. M. Kraner
1949	Cincinnati, Ohio	H. M. Kraner (R)	Howells Frechette, A. L. Bennett, Robert Twells
1950	New York, N. Y.	J. W. Hepplewhite (W)	Aaron K. Lyle, Hewitt Wilson, T. A. Klinefelter
1951	Chicago, Ill.	Howard R. Lillie (G)	Probert W. Dager, Ray W. Pafford, Arthur A. Wells
1952	Pittsburgh, Pa.	W. Edward Cramer (W)	Victor C. Swicker, Harry H. Holscher, H. B. DuBois
1953	New York, N. Y.	R. R. Danielson (C)	J. E. Eagle, Joseph A. Pask, S. M. Swain
1954	Chicago, Ill.	Ray W. Pafford (S)	William O. Brandt, John F. McMahon, Rolland R. Roup
1955	Cincinnati, Ohio	Robert Twells (W)	R. S. Bradley, John H. Isenhour, Kenneth C. Lyon
1956	New York, N. Y.	Karl Schwartzwalder (W)	Oscar G. Burch, Louis Navias, C. W. Planje
1957	Dallas, Texas	John F. McMahon (gen)	Wayne A. Deringer, Clarence H. Hahner, J. S. Nordyke
1958	Pittsburgh, Pa.	R. S. Bradley (R)	W. W. Coates, Harry E. Davis, Herbert Insley
1959	Chicago, Ill.	Oscar G. Burch (G)	J. J. Canfield, John H. Koenig, James I. Mueller
1960	Philadelphia, Pa.	George H. Spencer-Strong (C)	Eugene C. Clemens, Frederick H. Norton, Andrew Pereny
1961	Toronto, Canada	John S. Nordyke (M)	V. J. Duplin, Leonard G. Ghering, Elroy E. Howe
1962	New York, N. Y.	John H. Koenig (E)	W. W. Gaskins, Frank Jansma, E. F. Osborn
1963	Pittsburgh, Pa.	Paul V. Johnson (S)	H. P. Bonebrake, Clair R. Oberst, James S. Owens
1964	Chicago, Ill.	Elburt F. Osborn (B)	R. R. Rhodes, G. J. Middleton, W. J. Smothers
1965	Philadelphia, Pa.	Howard P. Bonebrake (M)	R. E. Birch, L. S. O'Bannon, A. E. R. Westman
1966	Washington, D. C.	George J. Bair (G)	Arthur J. Blume, Edward C. Henry, Harry W. Thiemecke
1967	New York, N. Y.	James S. Owens (W)	Howard F. McMurdie, Alfred W. Allen, J. Earl Frazier
1968	Chicago, Ill.	Loran S. O'Bannon (C)	Clarence L. Babcock, Lane Mitchell, Theodore J. M. Planje
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1970	Philadelphia, Pa.	J. Earl Frazier (G)	Eugene E. Bryant, Richard M. Fulrath, Ralph L. Gibson
1971	Chicago, Ill.	William J. Smothers (R)	James R. Johnson, Robert S. Sinclair, Stephen D. Stoddard
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1974	Chicago, Ill.	Joseph E. Burke (B)	William J. Knapp, Malcolm G. McLaren, Haydn H. Murray, Basil G. Staples, Franklin M. Townsend
1975	Washington, D.C.	Ralston Russell, Jr. (W)	Sherwood E. Patek, John A. Stewart, O. J. Whittemore, Jr.
1976	Cincinnati, Ohio	Stephen D. Stoddard (N)	Gordon L. Barna, Seymour L. Blum, Winston Duckworth

American Ceramic Society

Publications on Ceramic Science

1975 Supplement, Phase Diagrams for Ceramists (with commentaries)

This volume was compiled by Ernest M. Levin and Howard F. McMurdie, of the National Bureau of Standards, and edited and published by the American Ceramic Society.

The 1975 Supplement adds 850 new phase equilibrium diagrams, mainly from literature published since 1967, to those published in the basic 1964 volume* and the 1969 Supplement.† Together the three books provide 4999 phase equilibrium diagrams, organized and indexed for convenient reference. The 1975 Supplement contains cumulative indexes for all three volumes.

Unlike the first two volumes, the 1975 Supplement contains commentaries by the compilers pertinent to the accuracy of the diagrams, methods and chemicals used, correction of obvious errors, sources of additional information, particular features or applications, relation of the system studied to similar or isomorphous systems, etc.

Diagrams are organized in seven sections: 1) metal-oxygen systems, 2) metal oxide systems, 3) systems with oxygen-containing radicals, 4) systems containing halides only, 5) systems containing halides with other substances, 6) systems containing cyanides, selenides, sulfides, etc. and 7) systems containing water.

Hard bound; 513 pages. Price: $35 to nonmembers, $30 to members of the American Ceramic Society, $20 to student members. Add $2 for each copy to be mailed outside the United States.

***The 1964 basic volume** contains 2066 diagrams (without commentaries) and a 33-page introductory section, including glossary of terms, discussion of the phase rule, interpretation of diagrams, experimental methods and selected bibliography.

Hard bound; 601 pages. Price: $18 to nonmembers, $12 to members of the American Ceramic Society, $8 to student members. Add $2 for each copy to be mailed outside the United States.

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†**The 1969 Supplement** contains 2083 phase equilibrium diagrams (without commentaries) on the seven areas of interest covered in the 1975 Supplement. Indexes are cumulative for both the 1969 Supplement and the basic volume.

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This volume is a key to the literature of ceramic science and technical knowledge developed 1956 through 1970, as presented in papers in the *Journal of the American Ceramic Society* and *Ceramic Bulletin*. All papers are indexed in depth for these 30 volumes. The author index contains some 4520 references, the subject index some 12,700.

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Cumulative Index to Society Publications, 1918-1955 covers the first 38 years of the *Journal* and first 34 years of *Ceramic Bulletin*. The work has some 6280 references in the author index and some 16,800 in the subject index.

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Advances in Nucleation and Crystallization of Glasses

The 26 papers in this volume were presented at the American Ceramic Society Glass Division symposium in April 1971. The book is a must for awareness in developments during the previous decade in nucleation, crystal growth and applications in inorganic glass systems.

Translation of this scientific knowledge into technological practice and the creation of a variety of consumer products are well documented in the Applications section of the book. Subject and author indexes are included.

Edited by L. L. Hench of the University of Florida and S. W. Freiman of the Naval Research Lab. Society Special Publication No. 5.

Hard bound; 290 pages. Price: $20 to nonmembers, $15 to members of the American Ceramic Society, $11 to student members. Add $2 for each copy to be mailed outside the United States.

Symposium on Nucleation and Crystallization in Glasses and Melts brings together 18 papers presented as a part of the Glass Division's meeting in April 1961. These papers provide studies in the fundamentals of glass crystallization and glass formation.

Hard bound; 123 pages. Price: $15 to nonmembers, $10 to members of the American Ceramic Society, $5 to student members. Add $1 for each copy to be mailed outside the United States.

Advanced Materials: Composites and Carbon

This volume contains 25 papers presented in April 1971 at a symposium sponsored by the American Ceramic Society's Ceramic-Metal Systems Division, in cooperation with the Basic Science and Refractories Divisions. John D. Buckley, NASA, Langley Research Center, served as chairman of the symposium and compiled this volume.

Paperback; 222 pages. Price: $13 to nonmembers, $11 to members of the American Ceramic Society, $9 to student members. Add $2 for each copy to be mailed outside the United States. Reprints of the individual papers are available at $1 each plus postage; a list of the papers will be sent upon request.

Electronic Ceramics

Each of the six chapters in this book was written by a recognized authority in his field of specialization. They were first presented as a continuing education symposium under the joint sponsorship of the National Institute of Ceramic Engineers, the Ceramic Educational Council and the Electronics Division of the American Ceramic Society. This work is excellent as a reference in electronic courses and for engineers to update their know-how. Compiled by O. J. Whittemore, Jr., University of Washington. Society Special Publication No. 3.

Hard bound; 70 pages; printed by offset from typed manuscript. Some 30 illustrations. Price: $9, $8 to student members. Add $1 for each copy to be sent outside the United States.

Alumina as a Ceramic Material

This sourcebook for aluminum oxide ceramic technology covers characteristics of high temperature, transition and hydrated aluminas in detail. Includes nomenclature, natural occurrence and associations, beneficiation and preparation techniques, crystallographic features and mineralogical properties. Mechanical, thermal, sonic, electrical, magnetic, optical, radiation (nuclear), chemical and colloidal properties are critically reviewed with aspects of grinding, forming and sintering pertinent to the production of refractories, glass, cements, cermets, electrical insulation, thermal coatings and airborne equipment. Compiled and edited by Walter H. Gitzen. Society Special Publication No. 4.

Hard bound; 264 pages. Price: $16 to nonmembers, $12 to members of the American Ceramic Society, $10 to student members. Add $2 for each copy to be mailed outside the United States.

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Journal Papers

The following papers appeared in the November–December 1976 issue of the *Journal of the American Ceramic Society*, formerly published under the same cover as *Ceramic Abstracts:*

Pressure and Temperature Dependence of the Elastic Moduli of Polycrystalline MgF_2. C. S. Rai and M. H. Manghnani, University of Hawaii, Honolulu

Thermal Shock Resistance and Fracture Strength Behavior of Two Tool Carbides. Y. W. Mai, Imperial College, London, England

Strength-Size Relationships in Ceramic Materials: Investigation of an Alumina Ceramic. G. K. Bansal, W. H. Duckworth and D. E. Niesz, Battelle, Columbus Labs, Columbus, Ohio

Experimental Errors in Estimating Times to Failure. P. N. Thorby, New Zealand Pottery & Ceramics Research Assn., Lower Hutt

Photochromic Effect in Fe-Doped PLZT Ceramics. K. Tanaka, Y. Hamakawa, K. Wakino and M. Murata, Osaka University, Japan

Early Hydration of a Superhigh-Early-Strength Portland Cement Containing Chromium. Hideo Teramoto and Shichiro Koie, Nihon Cement Co., Ltd., Tokyo, Japan

Infrared Reflectance Spectra of Lead Glasses Corroded in Acid. Susan Wood and J. R. Blachere, University of Pittsburgh, Pittsburgh, Pa.

Uncertainty in Minimum Lifetime Predictions. D. F. Jacobs and J. E. Ritter, Jr., University of Massachusetts, Amherst

Strength and Failure Predictions for Glass and Ceramics. J. E. Ritter, Jr. and J. A. Meisel, University of Massachusetts, Amherst

Crystallization of $Ca(PO_3)_2$ Glass Below the Glass Transition Temperature. Yoshihiro Abe, Tadahisa Arahori and Akira Naruse, Nagoya Institute of Technology, Japan

Material and Mode Dispersion in $GeO_2 \cdot B_2O_3 \cdot SiO_2$ Glasses. J. W. Fleming, Bell Labs, Murray Hill, N.J.

Growth and Dissolution of Gas Bubbles in Molten Boric Oxide. R. B. Brown and R. H. Doremus, Rensselaer Polytechnic Institute, Troy, N.Y.

Structural Units in K_2O-PbO-SiO_2 Glasses by Raman Spectroscopy. H. Verweij and W. L. Konijnendijk, Philips Research Labs, Netherlands

Phase Relations and Properties of Hafnium Titanate and Some Compositions of the HfO_2-TiO_2 System. Robert Ruh, G. W. Hollenberg, E. G. Charles and V. A. Patel, Wright-Patterson AFB, Ohio

An Experimental Test of Weibull Scaling Theory. David Lewis III and S. M. Oyler, N.Y.S. College of Ceramics, Alfred University, Alfred, N.Y.

Indexes to *Journal* papers for 1976.

The following papers are tentatively scheduled for publication in the January–February 1977 issue of the *Journal of the American Ceramic Society*, which will be published the latter part of January:

Kernel Migration for HTGR Fuels from the System Th-U-Pu-C-O-N. T. B. Lindemer and R. L. Pearson, Oak Ridge National Lab, Oak Ridge, Tenn.

Crystallization of As_2Se_3-As_2Te_3 Glasses. R. E. Loehman and A. J. Armstrong, University of Florida, Gainesville

Dispersion-Strengthened Glass Matrices—Glass-Ceramics, A Case in Point. M. P. Borom, General Electric Co., Schenectady, N.Y.

A One-Dimensional Model of Stretching Float Glass. O. S. Narayanaswamy, Ford Motor Co., Dearborn, Mich.

Fracture Properties of Polycrystalline Lithia-Stabilized β''-Alumina. A. V. Virkar and R. S. Gordon, University of Utah, Salt Lake City

Oxygen Stoichiometry in $LaMn_{1-x}Cu_xO_{3+y}$. E. M. Vogel, D. W. Johnson, Jr. and P. K. Gallagher, Bell Labs, Murray Hill, N.J.

Structural Integrity in Severe Thermal Environments. A. G. Evans and E. A. Charles, Rockwell International, Thousand Oaks, Calif.

Structural Analysis of the Transition Phases in the Kaolinite-Mullite Thermal Sequence. A. J. Leonard, Laboratoire de Physico-Chimie Minerale, Belgium

Isothermal Crack Healing and Strength Recovery in UO_2 Subjected to Varying Degrees of Thermal Shock. G. Bandyopadhyay and C. R. Kennedy, Argonne National Lab, Argonne, Ill.

Creep Behavior and Grain Boundary Sliding in Polycrystalline Al_2O_3. W. R. Cannon and O. D. Sherby, Stanford University, Stanford, Calif.

Diffusion of ^{51}Cr in MgO Crystals. G. W. Weber, W. R. Bitler and V. S. Stubican, Pennsylvania State University, University Park

Ternary Diffusion with Two Moving Boundaries. N. H. Cristensen, Danmarks Tekniske Højskole, Lyngby, Denmark

Self-Diffusion of ^{60}Co in $Co_{1-x}O$ Single Crystals of Controlled Stoichiometry. S. F. Rahman and M. F. Berard, Iowa State University, Ames

Fabrication of Reaction-Sintered Sialon. R. R. Wills, Battelle, Columbus Labs, Columbus, Ohio; R. W. Stewart, Eaton Corp., Southfield, Mich.; and J. M. Wimmer, University of Dayton Research Institute, Dayton, Ohio

Effects of Porosity and Grain Size on the Magnetic Properties of NiZn Ferrite. Hideji Igarashi and Kiyoshi Okazaki, National Defense Academy, Yokosuka, Japan

Preparation, Structure, and Selected Catalytic Properties of the $LaMn_{1-x}Cu_xO_{3-y}$ System. P. K. Gallagher, D. W. Johnson, Jr. and E. M. Vogel, Bell Labs, Murray Hill, N.J.

Dielectric and Electromechanical Properties of $(Li,Na)NbO_3$ Ceramics. R. M. Henson, R. R. Zeyfang and K. V. Kiehl, Allgemeine Elektricitats-Gesellschaft, Frankfurt, West Germany

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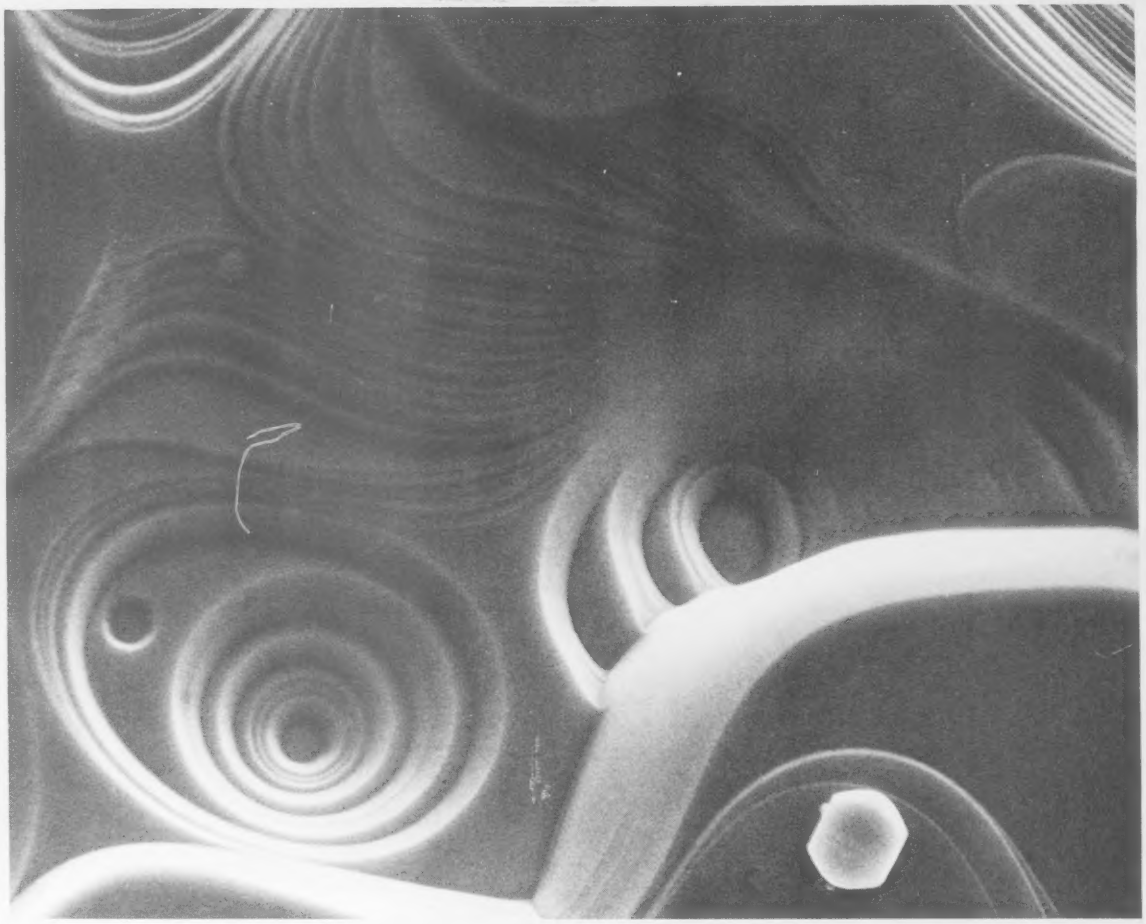

THERMAL ETCHING IN AN OVERFIRED STRONTIUM FERRITE
2000 X, Enlarged 2 X

This scanning electron micrograph of a pore region shows a step growth pattern caused by a thermal etching process. The process occurs through a vapor-solid equilibrium at elevated temperatures. A lowering of surface energy provides the driving force. The hexagonal platelet seen is characteristic of the strontium ferrite particulate structure.

CLASSIFICATION: Graduate Student
Scanning Electron Micrograph
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